Bauer
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KIT IB

S/N 311

KDTA

Bauer

AM BROADCAST TRANSMITTER
MODEL 707

INSTRUCTION BOOK

SPARTA
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Sacramento, California 95828
A DIVISION OF COMPUTER EQUIPMENT CORPORATION

098-1165-01

July 1970

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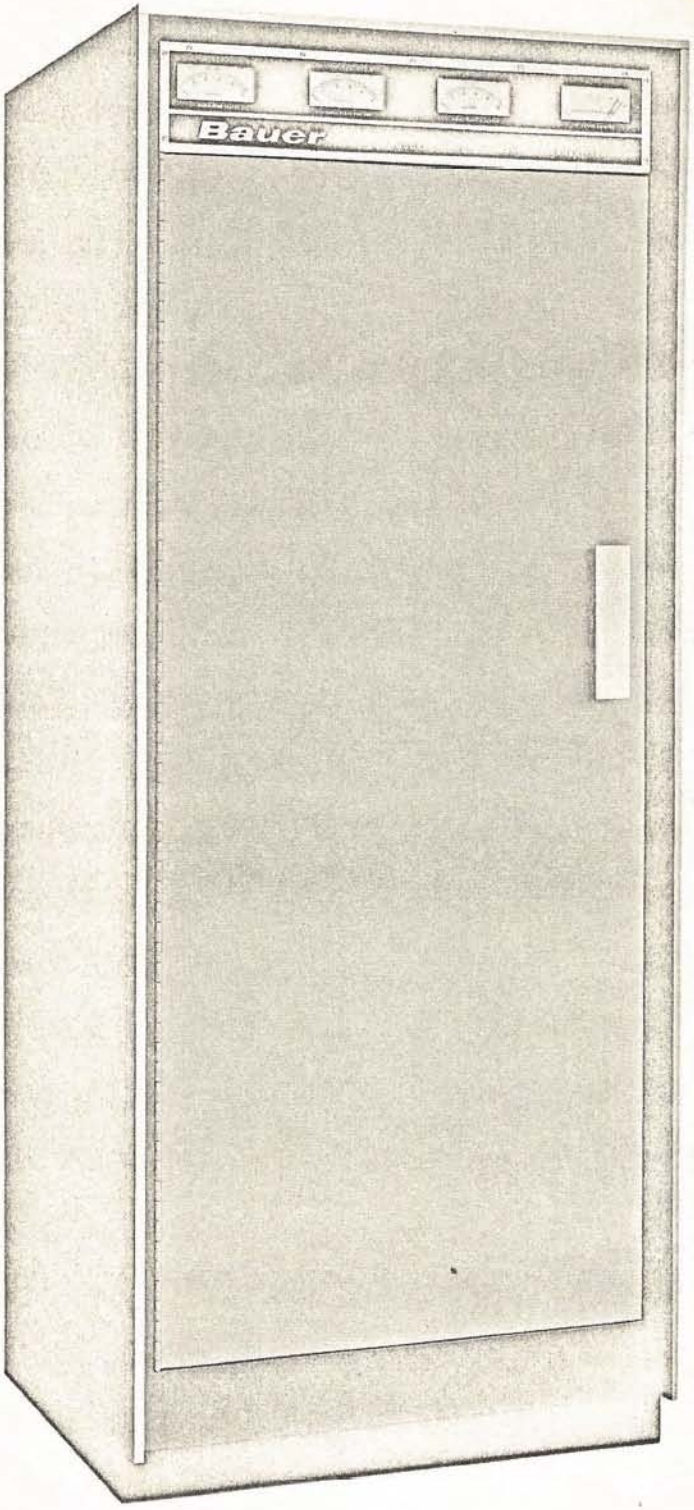


Figure 1. Model 707 AM Transmitter.

Table 1. Summary of Mechanical and Electrical Specifications.

Type of Emission:	A3
Rated Power Output:	1000/500/250 watts
Power Output Capability:	1100 watts
RF Output Impedance:	50 ohms, unbalanced
Frequency Range:	540-1600 kHz
Frequency Stability:	± 5 cps
Audio Input Level (100% mod):	+ 10 dbm
Audio Input Impedance:	600 ohms
Frequency Response (0-95% mod):	
1000/500/250 watts	
50-10,000 cps	± 0.5 db
30-12,000 cps	± 1.5 db
Distortion (0-95% mod):	
1000/500/250 watts	
50-10,000 cps	2.0% max
Carrier Shift 1000/500/250 watts:	less than 3%
Noise Level (below 100% mod):	-55 db
FCC Efficiency Factor (F):	0.70
Power Consumption:	
(for one kilowatt carrier power)	
Average modulation	3300 watts
100% modulation	3950 watts
Power Requirements:	208-230 volts, 60 cycles, single phase, 90% power factor

Table 1. Summary of Mechanical and Electrical Specifications (Continued).

Dimensions:	Height 75 inches, Width 34 inches, Depth 25 inches
Net Weight:	800 pounds
Ambient Temperature Range:	-20° to +110°F
Altitude Range:	0-8000 feet

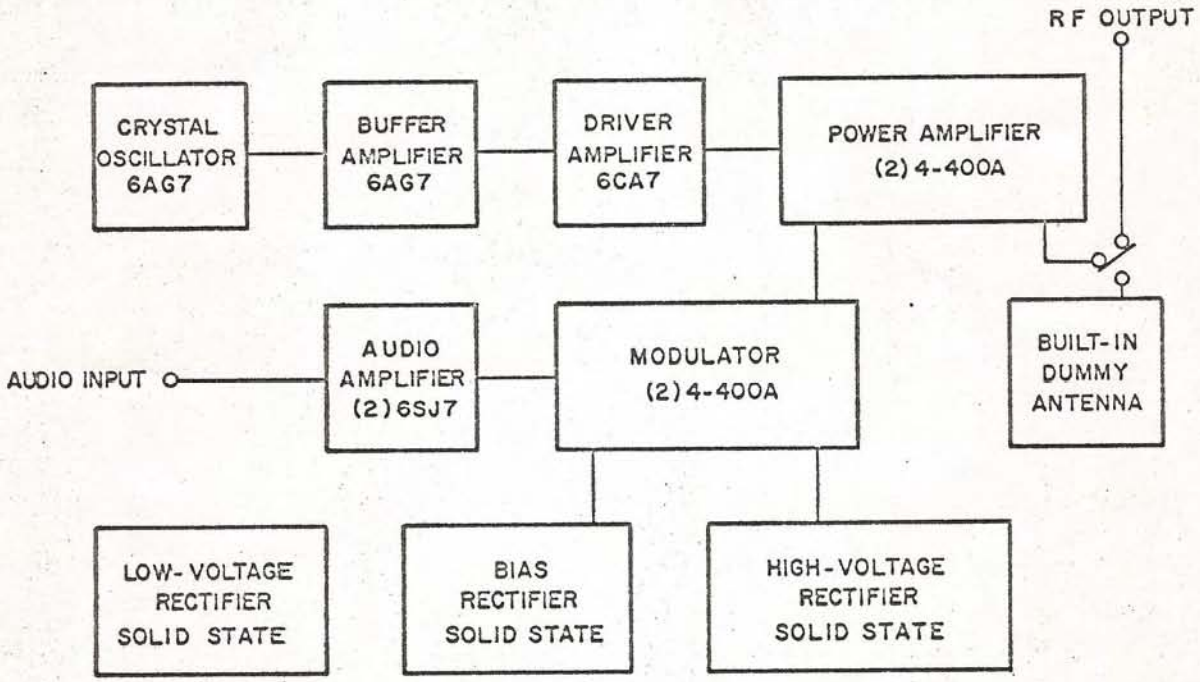


Figure 2. Functional Block Diagram.

DESCRIPTION OF CIRCUIT FUNCTIONS

The Bauer Model 707 AM Broadcast Transmitter employs high-level modulation and can operate on any carrier frequency in the range from 540 kHz to 1600 kHz. With modifications, operation can be extended to 30 MHz. The transmitter is normally supplied pre-tuned to the desired channel. The frequency-determining components for the transmitter are listed in table 4. Bi-level power operation is standard with this transmitter which can be switched instantly between any two of the following three power levels: 250 watts, 500 watts, 1000 watts. Component values that establish the two operating power levels are given in table 5. A functional block diagram is given in figure 2; the schematic is shown in figure 7.

Radio-Frequency Section

The radio-frequency portion of this transmitter begins with Type 6AG7 crystal oscillator V1. For emergency operation, a second crystal may be switched into the oscillator circuit by means of relay K6. The oscillator drives Type 6AG7 buffer amplifier V2. The cathode circuit of V2 supplies unmodulated RF at jack J1 to operate any standard frequency monitor. The entire oscillator/buffer assembly is constructed in a removable shielded chassis. The buffer output excites Type 6CA7 RF driver tube V3. Resistor R12 in the cathode circuit of V3 controls the gain of the driver stage and determines the amount of RF drive available at the grid of final power amplifiers V8 and V9. Plate and screen voltage on the final power amplifiers is varied by the modulator to produce amplitude modulated radio-frequency output. Plate choke L6 and capacitor C22 prevent RF power from feeding back into the modulator and power supply portions of the transmitter. The RF signal appearing across capacitor C25 and a small portion of tank L7 is coupled into a Tee matching network consisting of L8, C26, and L9. The location of the output tap on L7 is selected so that the combination of C25 and the lower portion of L7 form a low impedance circuit at the second harmonic of the carrier where necessary to provide optimum suppression of second-harmonic radiation. The radio-frequency output from the Tee matching network can be switched to a built-in dummy load by means of switch S8. The load tap on coil L9 is automatically shifted slightly when the output is switched to the dummy to compensate for the small amount of residual inductance inherent in the dummy load. S8 is constructed to allow the insertion of an RF ammeter for use during the initial tune-up. M4 is an 0-1 ma DC meter with a 0-6 RF ampere scale intended to be used with a remote diode for metering antenna current.

The transmitter is designed to feed a non-reactive 50 ohm unbalanced load. Non-standard load impedances can be accommodated with a matching network external to the pressurized transmitter cabinet.

Audio Section

The audio portion of the Model 707 Transmitter consists of push-pull Type 6SJ7 amplifier tubes V4 and V5, which drive push-pull Type 4-400A modulator tubes V6 and V7 operating class AB-1. The audio level supplied to input transformer T6 is controlled by the operation of relay K5 so that the degree of modulation remains unchanged when switching between the two power levels. Balance control R46 serves to balance the audio levels fed to the grids of V6 and V7 for minimum distortion. Bias control R27 establishes the modulator plate current under conditions of no modulation. Inverse feedback around the two audio stages is provided by two voltage dividers. The combination of R55 and R43 returns a portion of the output voltage of V6 to the grid circuit of V5. Similarly, R58 and R44 return a portion of the output of V7 to the grid of V4. The resistance values establish the amount of audio feedback at 8 db. The audio output voltage appearing across the secondary of modulation transformer T7 produces amplitude modulation by alternately adding to and subtracting from the DC voltage applied to the final RF power amplifier.

Power Supply Systems

Three separate power supply systems provide the DC voltages necessary for operation of the transmitter. High-voltage plate transformer T1 drives a bridge rectifier consisting of two plug-in rectifier assemblies. The rectified high-voltage output is filtered and used to supply plate voltage to the four 4-400A tubes and screen voltage to the final RF stage. For 500 watt operation, series resistors are added to reduce the final plate and screen voltages. For 250 watt operation, increased efficiency is obtained by operating half of the high-voltage rectifier independently of the normal bridge circuit to produce half-voltage output for the final amplifier. A second section of filter (L10, C46) is added during 250 watt operation to maintain low hum level at the lower power. A plug-in bias rectifier consisting of a single silicon diode package D1 supplies negative bias voltage to the grids of modulator tubes V6 and V7. Another bridge rectifier consisting of silicon diodes D2 through D17 provides DC for audio amplifiers V4 and V5, RF driver V3, and the screens of modulators V6 and V7. Diodes D2 through D5 and D14 through D17 also function as a conventional full-wave rectifier to deliver a lower value of DC voltage at terminal 5 of transformer T5 which is filtered through L18 and C27 to provide power for V1, V2, and the screen of V3.

Power Control Circuits

Unlike tube-type rectifying systems, no time delay relays are required to prevent the premature application of high voltage to the rectifiers. This considerably simplifies the control and relay circuits. Power at 230 volts, single-phase, is supplied to the transmitter through main line fuses F6 and F7. Actuation of master-start switch S1 picks up relay K1 which in turn applies power to the primary of voltage regulating transformer T2 and to the blower. When door interlock S11 is closed, the operation of switch S2 applies power to the primary of low-voltage and bias rectifier transformer T5. With

power supplied to T5, all of the low-level stages V1 through V5 will function and the RF drive supplied by V3 will produce sufficient grid current in the final amplifier to operate grid under-drive relay K2. When sufficient RF drive is present to operate relay K2 it is then possible to operate high-voltage supply contactor K7 (if high-voltage door interlocks S9 and S10 are closed) when the high-voltage switch S4 is closed. This also requires that the overload relay be in reset position. In normal operation, both the low and high voltage switches, S2 and S4, are left turned on and the entire transmitter is controlled by master-start switch S1.

Auxiliary contacts on relay K7 prevent the application of full screen voltage to the modulator tubes before the plate voltage has been applied. Overload relays K8, K9, and K10, will de-energize relay K7 and remove high voltage plate power in the event that there is excessive current in the cathode circuit of the final amplifier, in the cathode circuit of the modulators, or in the primary of plate transformer T1. Adjustable shunting resistors R16 and R59 control the sensitivity of overload relays K8 and K9. The improved "Silconetic" overload relays utilize a special silicone damping fluid. They provide instantaneous operation on large overloads and delayed operation on small but sustained overloads. As a result, superior overload protection is achieved while avoiding nuisance outages caused by short-term transients such as power line surges or isolated peaks of overmodulation which would not damage the transmitter. In case of an overload, flags are extended by the overload relays to indicate which circuit is involved. The operation of any one of the three overload relays removes primary power which, in turn, eliminates the overload current and restores the overload relay to the normally-closed position. Repetitive re-cycling of the overload relays and of contactor K7 is prevented (in the event of a sustained overload) by an "overload-lockout" circuit consisting of latching relay K3 and associated components. When any of the overload relays operate, the voltage across its normally-closed contacts is applied to diode rectifier D77 to change capacitor C43. When sufficient voltage appears across C43, relay K3 will latch open its normally-closed contacts to prevent prolonged repetition of re-cycling. The time required to build a sufficient charge on C43 to actuate K3 is adjusted by rheostat R61. This is normally set so that the overload relays will re-cycle three times before K3 operates. When the cause of the overload has been cleared, momentary manual operation of overload reset switch S3 serves to energize the reset coil on K3 and restore it to the normally-closed condition.

The air flow switch S12, located in the tube compartment, is connected to remove filament and low voltage power should air loss be experienced.

Small adjustments in operating power are made with motor-driven rheostat R19 in the cathode circuit of the final amplifier. Power is raised or lowered through the momentary operation of switch S5 which determines the direction of rotation of the power control motor. The large change in power necessary when switching to the lower of the two power levels provided by the transmitter is accomplished through the operation of switch S6 which actuates power change relays K4 and K5. One set of contacts on relay K5 is used to reduce the audio input to the transmitter so that the same degree of modulation is maintained

when going to lower power. A second set of contacts on relay K5 inserts an additional resistance R13 in the cathode circuit of RF driver V3 to reduce the RF drive to the final power amplifier stage. The operation of relay K4 serves to reduce the plate and screen voltage applied to the final power amplifier for lower power. Correction of modulation monitor feed when changing power is accomplished by relay K-11 and adjustable resistor R-75.

Terminals are provided to facilitate the connection of remote controls on all necessary operating switches.

Metering Circuits

Voltage or current meters are provided for all important circuits and remote metering facilities are built into the transmitter so that plate voltage and plate current for the final power amplifier can be metered by any conventional remote control system without adding accessory metering units within the transmitter. For added safety and to prevent the accumulation of dust, the final plate current meter M3, is kept at a low potential. This meter in the cathode circuit of the final amplifier reads combined plate and screen current. The value of net plate current can be obtained by subtracting the screen current indicated by meter M6. The references in the Federal Communications Commission Rules to final efficiency do not consider the screen power supplied to the final amplifier. The net plate current should accordingly be used in any calculations of efficiency in comparison to the FCC efficiency factor (F).

INSTALLATION INSTRUCTIONS

Environment

Install the transmitter in a well-ventilated room which is reasonably free from moisture and dust. Particular care should be given in remote control installations to obtain adequate room ventilation and to prevent the ambient temperature from rising to dangerously high levels.

External Connections

1. Connect a low-resistance ground to the transmitter frame using any of the base assembly bolts. Remove paint at all points of contact to obtain a good connection. On smooth wooden floors, an alternative method is to remove paint from the bottom of the base, set the front edge of the transmitter base on a length of copper strap, and anchor the transmitter with lag screws extending through the base and the copper strap.

2. Connect a 230 volt, 60 cycle, single-phase supply to the transmitter fuse block using number 10 wire. The safety disconnect switch or circuit-breaker supplying the transmitter should be rated at 30 amperes. The utility transformer feeding the transmitter should have a capacity of 5 kva or more to provide adequate regulation for minimum carrier shift.

3. A hole has been provided in the bottom of the cabinet near T-7 to accommodate an RF output transmission line such as RG-8/U or 1/2" Foamflex. The line can enter the transmitter cabinet at the top if desired. Any hole drilled to accommodate the transmission line should be no larger than necessary so as to maintain air pressure. It is important that the outer conductor be securely grounded at a point near the termination of the inner conductor.

4. Connect the frequency monitor to frequency monitor output jack J1. If unused, jack J1 should be shorted to prevent spurious oscillations.

5. Connect the modulation monitor to modulation monitor output jack J2.

6. Connect 600 ohm audio output to terminals 1 and 2 of TB1.

Internal Connections

To minimize transportation damage, the heavier components are normally removed from the transmitter prior to shipment. Reinstall these as follows:

1. Install modulation transformer T7 in the rear corner of the cabinet below C-32. Terminals 1, 2, and 3 should be toward the rear of the cabinet.

   a. Connect wire No. 164 to terminal No. 1.

   b. Connect wire No. 155 to terminal No. 2.

   c. Connect wire No. 165 to terminal No. 3.

   d. Connect wire No. 154 to terminal No. 4.

   e. Connect wire No. 156 to terminal No. 5.

2. Install high-voltage transformer T1 in the rear corner underneath the door interlock switches with the primary terminals toward the rear of the cabinet.

   a. Connect wire No. 162 to high-voltage center tap (terminal 7).

   b. Connect wire No. 158 to one side of high-voltage (terminal 6).

   c. Connect wire No. 159 to other side of high-voltage (terminal 8).

   d. Connect wire No. 129 to primary ± tap (terminal 1).

   e. Connect wire No. 130 to primary 230 volt tap (terminal 5).

3. Install modulation choke L12 in the remaining space on the transmitter floor with the terminals toward the front of the cabinet.

   a. Connect wire No. 153 and No. 156 to left-hand terminal (as viewed from the rear of the transmitter).

   b. Connect wire No. 163 to right-hand terminal.

4. Install Sola voltage regulating transformer T2 on the four shock mounts attached to the side of the cabinet adjacent to the door interlock switches. Add grommet to top knockout hole nearest the front panel if not already installed.

   a. Connect wire No. 14 to terminal H1.

   b. Connect jumper between terminals H2 and H3.

   c. Connect wire No. 15 to terminal H4.

   d. Connect wire No. 20 to terminal X1.

   e. Connect wire No. 21 to terminal X2.

5. Install all tubes, making sure that the skirts of the 4-400A tubes clear the chassis holes and seat firmly on the ceramic sockets. Connect 4-400A plate caps.

6. Install main crystal in the right-hand socket (as is viewed from the rear) on the oscillator/buffer chassis.

7. Install auxiliary crystal used.

INITIAL ADJUSTMENTS AND TUNING

Remove high-voltage rectifiers, CB12 and CB13. Set front panel switches as follows: Low voltage - OFF; high voltage - OFF; high-low power control - LOW; crystal switch - No. 1.

With 230 volts supplied to the transmitter, operate the master-start switch S1. This should close relay K1, start the blower and light the 4-400A filaments. Close all doors to actuate the interlocks. Turn on low voltage switch S2 activating the low voltage supplies including filament power for all small tubes. When the tubes have heated, there should be normal current indications on the four lower front panel meters. Compare

these meter readings at both low and high power with those tabulated in table 2 and, if necessary, adjust the final grid current to the indicated value through adjustment of final drive control R12. The final grid tuning coil L5 (located in the tube compartment to the right of V9) does not normally require adjustment but should be checked if the correct value of grid drive and driver plate current cannot be obtained within the range of control R12. The optimum adjustment of L5 will result in maximum final grid current with minimum driver plate current.

To prepare for the next step, operate power control switch S5 to place the arm of power control rheostat R19 in the center of its range.

With the transmitter master-start switch turned off, place the antenna/dummy switch S8 in the DUMMY position. Set R61 on CB4 fully counterclockwise. Install high-voltage diode rectifier boards CB12 and CB13. Adjust bias control R27 for maximum modulator bias by rotating fully counterclockwise. With the high-voltage switch remaining off and the high/low power control switch in the low position, energize the master-start switch. When normal final grid current is obtained, turn on the high-voltage switch. The final plate voltage meter should now indicate approximately 1500 volts. Adjust the final plate tune control for minimum plate current and tune through both sides of the "dip" to make certain that the variable capacitor has not reached the limit of its range. If an RF output meter is used, it should now indicate. With no audio yet applied to the transmitter, adjust bias control R27 to set the modulator plate current at the value indicated for low-power operation in table 2. If all meter readings are now in substantial agreement with the typical values, the high/low switch can be changed to high and all meter readings compared with those tabulated in table 2 for high-power operation.

If the final plate voltage differs by more than 100 volts from the typical value, correct by means of the primary taps on high-voltage plate transformer T1. If the final plate current differs materially from the typical value, it may be necessary to change the final loading slightly to obtain maximum efficiency. Changes in loading are accomplished by moving the C23 and C24 taps on the final tank coil L7. The output tap on L7 should not be changed because this adjustment must remain fixed for maximum second-harmonic attenuation. Increasing the tank inductance results in lower tank current and looser coupling. Any change in tank inductance will require retuning the tank capacitor for minimum plate current. All loading and tuning changes should be made in small increments and at low power because larger departures from plate tank resonance will produce excessive final plate current and operate the overload relays. Care should be taken not to place a strain on the vacuum variable capacitor by turning the drive mechanism beyond minimum capacity (clockwise). Care should also be taken not to unscrew the drive mechanism past the point of maximum capacity (counterclockwise). This condition is indicated by a slight reduction in torque and a sudden loosening of the dust cap inside the tube compartment. Normally the C23 and C24 taps connect to the same turn on the tank coil but finer loading adjustments may finally be made by moving them independently through a separation not

exceeding two or three turns. Optimum loading exists when the rated RF output current can be obtained with the least plate current. To obtain best efficiency, the final tuning capacitor should then be tuned slightly clockwise from the minimum plate current position to increase plate current by 20 ma. Refer to table 4 for normal tuning adjustments.

After optimum loading has been established and all meter indications are in substantial agreement with table 2, the transmitter audio performance should be checked by means of a modulation monitor and distortion meter. It is recommended that these measurements be made by using a suitable audio oscillator having negligible distortion fed directly into the transmitter input terminals without benefit of any other amplifying equipment. Any discrepancies in subsequent overall system measurements are then logically attributable to the equipment external to the transmitter or to the manner in which the external equipment is used.

Noise + Dist

Although any good 4-400A tube will operate satisfactorily in any of the four tube positions, the lowest carrier noise will be obtained by selecting the tubes for the final RF stage while making noise measurements. Adjust balance control R46 for minimum distortion at 85% modulation with 3000 cycles. If minimum distortion occurs at the end of R46 rotation, select a different pairing of 6SJ7 audio amplifier tubes. If no distortion meter is available, set R46 at mid-range.

O. L.

The overload circuits should now be checked. With the transmitter operating on high power, detune the final until the final plate and screen current is 600 ma. The plate overload should operate within one to two seconds. If necessary, readjust relay shunt R16 to get this condition. Restore tuning to normal.

Increase 7500 cycle audio input to obtain 500 ma of modulator plate current. The modulator overload relay should operate within one to two seconds. If necessary, readjust relay shunt R59 to get this condition.

O. L. Lock

The "overload lockout" circuit should now be adjusted. Set R61 on CB4 to mid-range and produce a large plate current overload by detuning the final amplifier. The overload relays should recycle several times before K3 latches open. Proceed to adjust R61 in small increments until overload relays recycle not more than three times before K3 latches open, remembering that CW rotation of R61 increases the number of recycles.

Mod Mon

With transmitter on low power, set modulation monitor carrier level to 100. Then, switching to high power, adjust R-75 so that carrier level again reads 100.

The transmitter is now ready to be switched to a properly adjusted, non-reactive, 50-ohm load. Change the dummy/antenna switch S8 to the ANTENNA position. If the antenna load is near 50 ohms and is non-reactive, the loading and the point of C24 resonance will remain unchanged. The transmitter is now ready for routine operation.

MAINTENANCE AND TROUBLESHOOTING

Periodic inspection will often reveal a condition that may lead to an eventual component failure. After shutdown of the equipment check the operating temperatures of all of the major components. Items such as the constant voltage transformer and high wattage resistors are expected to run warm. Most other components do not and you should attempt to develop a feel for their normal operating condition. Dirt is the major enemy of all electronic equipment. A routine cleaning of the air filter is a necessity. A soft dust brush augmented with a vacuum cleaner should be used as often as necessary to prevent any accumulation of dust within the cabinet. Wipe up any silicone fluid that may leak out of the modulation transformer. Slight seepage is not harmful.

A routine check of all meter readings is most helpful. Use them as a guide to tube replacement which is the major component problem in any radio transmitter. Develop a tube log and keep track of the hours a tube is used. Use your experience to dictate tube replacement rather than wait for a tube failure and possible lost air time. Because of its outstanding component accessibility the Model 707 is easy to maintain. Use the servicing aids that are provided as a part of the transmitter. Note the flags on the overload relays (K-8, K-9, K-10) when trouble is being experienced. Re-check your tuning procedures. Make sure that you tune the final tank circuit beginning with the vacuum variable capacitor in its maximum capacity position (counterclockwise). Don't overlook the simple solution.

REMOTE CONTROL

When operating by remote control the transmitter unit of the remote control system should be connected as follows:

Function	Model 707 Connections
Filament on	TB1 - 8 and 9
Plate on	TB1 - 12 and 13*
Power control	TB1 - 14 (lower) TB1 - 15 (raise) TB1 - 16 (common)
High/Low power	TB1 - 16 and 17
Remote crystal (Conelrad)	TB1 - 16 and 18
Metering (plate voltage)	TB1 - 4 and 5
Metering (plate current)	TB1 - 6 and 7
Remote reset	TB1 - 11 and 12*

* With some remote control systems outboard latching relays may be required in these positions. For help in any remote control problems, contact the Bauer factory stating

the make and model of remote control system to be used. Shown below is a Rust, Model 108-4A latching relay unit as it would be used with the Bauer Model 707 transmitter. When the "plate on" function is initiated a circuit is completed (through the operate relay contacts) between TB1-12 and 13, allowing plate voltage to come on. (Toggle switch S2 on the transmitter is always left on when the transmitter is to be run by remote control.) To turn off the plate voltage or to reset the overload relay K3, the "plate off/reset" function is initiated. This will break the connection between TB1-12 and 13 (removing plate voltage) and simultaneously apply 220 volts AC to reset K3. It is important in all remote control systems to duplicate the functions of S3 and S4 as closely as possible. When resetting the overload relay plate voltage must be automatically removed by the control system. The reset voltage applied to K3 can be continuous or momentary depending upon the type of latching relay used.

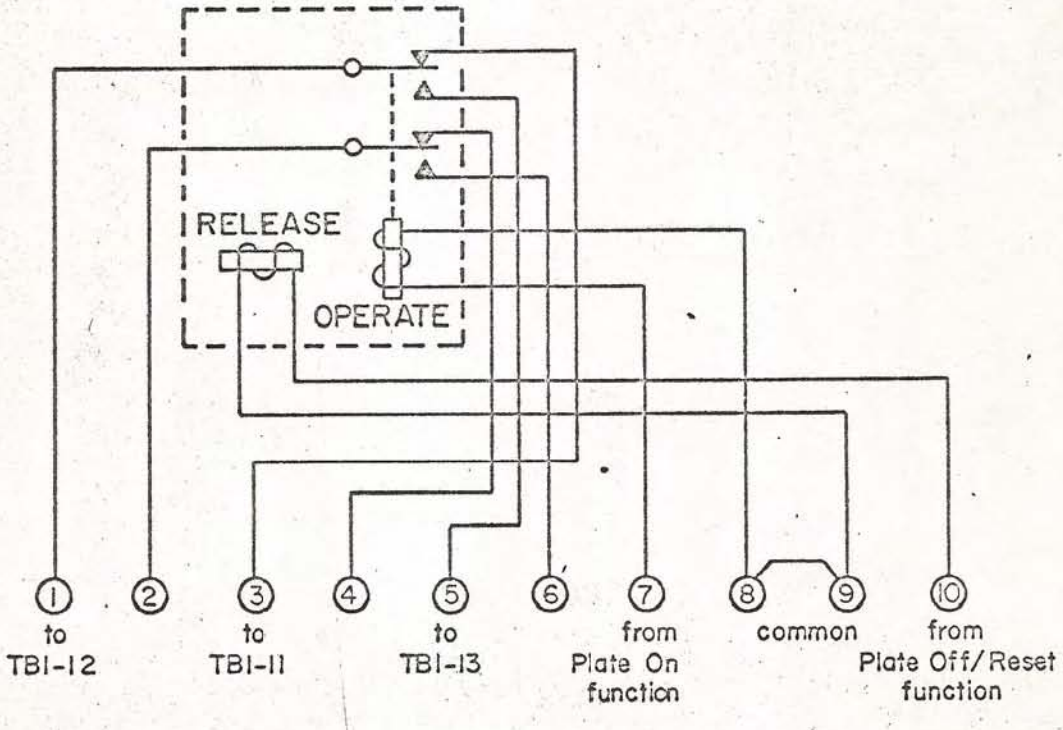


Figure 3. Latching Relay Unit - Rust Model 108-4A.

GENERAL SERVICE INFORMATION

Safety Notice

WARNING

Voltages used for the operation of this equipment are dangerous to human life.

This instruction book is written for the general guidance of maintenance and service personnel who are familiar with and aware of the dangers of handling electric and electronic circuits. Standard safety precautions should be followed when servicing this equipment. The servicing of this equipment by inadequately trained or inexperienced personnel involves risks to such personnel and to the equipment for which the manufacturer cannot accept responsibility. Personnel servicing this equipment should familiarize themselves with first aid treatment for electrical burns and electrical shock.

Production Changes

From time to time it becomes necessary to make changes in the equipment described in this book. Such changes are made to improve performance or meet component changes. Prior to reprinting an addenda sheet will be provided in the front of this instruction book describing the changes and the necessary corrections for this book. This information is provided as a servicing aid and should not be used to modify earlier equipments except under specific instructions.

Replacement Parts

The parts list contained in this book includes all principal replacement parts. The symbol numbers are the same as those used on the main schematic. Wherever possible the manufacturer's name and type are given to aid you in securing local replacement of any of the parts used in this equipment. The majority of the parts used in this equipment are available right off the shelves of the better electronic parts houses. You are encouraged to use these sources of supply. When necessary to order from the factory please give the symbol, equipment type or model and part number. Orders should be sent to Granger Associates, Bauer Broadcast Products Division, 1601 California Avenue, Palo Alto, California 94304 USA.

WARRANTY

SPARTA ELECTRONIC CORPORATION warrants to the purchaser of SPARTA Electronic Products that any part thereof, which proves to be defective within one year from the date of shipment, will be repaired or replaced free of charge if returned to the factory prepaid. All returns must be specifically authorized by the factory prior to shipment.

SPARTA reserves the right to make changes in design and improvements upon its products without assuming any obligation to install the same upon any of its products theretofore manufactured.

High voltage transformers, modulation transformers, reactors and filter chokes carry an extended warranty of 50% of the replacement cost being allowed should failure occur during the second year. Electron tubes and silicon rectifiers bear only the warranty of the manufacturer thereof in effect at the time of shipment to Purchaser.

Accessories supplied by, but not manufactured by SPARTA ELECTRONIC CORPORATION, shall carry only such manufacturer's standard warranty and are specifically excluded from SPARTA ELECTRONIC CORPORATION's warranty.

This warranty is expressly in lieu of all other warranties express or implied and does not apply to normal wear and tear or damage resulting from shipment, misuse, unauthorized modifications, or any other modifications, or any other cause or condition except normal usage. Replacement parts supplied under this warranty carry only the unexpired portion of the original warranty.

8/3/70

Table 2. Typical Transmitter Performance Data, Bauer Model 707.

Circuit	Meter Readings					
	250 Watts		500 Watts		1000 Watts	
	0% Mod.	100% Mod.	0% Mod.	100% Mod.	0% Mod.	100% Mod.
Audio Plate	4-5 ma	4-5 ma	4-5 ma	4-5 ma	4-5 ma	4-5 ma
Oscillator Plate	10-12 ma	10-12 ma	10-12 ma	10-12 ma	10-12 ma	10-12 ma
Driver Plate	8-14 ma	8-14 ma	14-18 ma	14-18 ma	16-24 ma	16-24 ma
Final Grid	11-13 ma	11-13 ma	14-16 ma	14-16 ma	18-20 ma	18-20 ma
Final Screen	24-29 ma	24-29 ma	34-38 ma	34-38 ma	50-58 ma	50-58 ma
Modulator Plates	120 ma	190-210 ma	115 ma	290-315 ma	110 ma	380-420 ma
Final Plate Voltage	1450-1550 v	1450-1550 v	2050-2150 v	2050-2150 v	2900-3100 v	2900-3100 v
Final Plate and Screen	220-260 ma	220-260 ma	320-360 ma	320-360 ma	480-560 ma	480-560 ma
R. F. Output	2.28 amps	2.78 amps	3.18 amps	3.25 amps	4.56 amps	5.56 amps

Typical Performance

Audio input level, 1000 cps, 100% mod., + 10 dbm

Noise, -58 db below 100% modulation

Distortion, measured at 95% modulation, 1000 watts

50 cps, 1.4%	100 cps, 0.9%	400 cps, 0.7%
1000 cps, 0.6%	5000 cps, 0.9%	7500 cps, 1.2%

Response at 1000 watts (variation from 1000 cps, 95% modulation)

30 cps, -1.0 db	50 cps, 0.0 db	100 cps, 0.0 db
400 cps, 0.0 db	1000 cps, 0.0 db	3000 cps, 0.0 db
5000 cps, + 0.2 db	7500 cps, + 0.3 db	10,000 cps, + 0.1 db

Efficiency 70-75% Dummy Resistance 48 ohms

Table 3. Parts List (Part 1 of 9).

Symbol	Part No.	Description	Manufacturer
		Resistors	
R1	136-1190	Resistor, 56,000 ohms, 1/2 w, 10%	
R2	136-1148	Resistor, 1000 ohms, 1/2 w, 10%	
R3	136-1589	Resistor, 56,000 ohms, 2 w, 10%	
R4	136-1580	Resistor, 22,000 ohms, 2 w, 10%	
R5	136-1164	Resistor, 4700 ohms, 1/2 w, 10%	
R6	136-1556	Resistor, 2200 ohms, 2 w, 10%	
R7	136-0117	Resistor, 51 ohms, 1/2 w, 5%	
R8, R9	136-1572	Resistor, 10,000 ohms, 2 w, 10%	
R10	136-1548	Resistor, 1000 ohms, 2 w, 10%	
R11	131-0750	Resistor, 3000 ohms, 5 w, wirewound	Ohmite, "Axial"
R12	137-0034	Potentiometer, 3000 ohms, 4 w	Clarostat, A-10-3000
R13		Power determining part, see table 5	
R14	131-0755	Resistor, 15,000 ohms 5 w, wirewound	Ohmite, "Axial"
R15	131-0191	Resistor, 20,000 ohms 20 w, wirewound	Ohmite, "Brown Devil"
R16	137-0735	Resistor, 50 ohms 25 w, wirewound, adjustable	Ohmite, 0366
R17, R18	136-1524	Resistor, 100 ohms, 2 w, 10%	
R19	137-0244	Rheostat, 300 ohms, 100 w, wirewound	Ohmite, 0453
R20	131-0214	Resistor, 15 ohms, 25 w, wirewound	Ohmite, "Brown Devil"
R21		Not used	
R22	131-0835	Resistor, 5000 ohms, 11 w, wirewound	Ohmite, "Axial"
R23	131-0837	Resistor, 25,000 ohms, 11 w, wirewound	Ohmite, "Axial"
R24	131-0839	Resistor, 50,000 ohms, 11 w, wirewound	Ohmite, "Axial"
R25	131-0748	Resistor, 1000 ohms, 5w, wirewound	Ohmite, "Axial"
R26	131-0751	Resistor, 5000 ohms, 5 w, wirewound	Ohmite, "Axial"
R27	130-0054	Potentiometer, 2500 ohms, 2 w	Ohmite, CLU2521, locking
R28	131-0752	Resistor, 6000 ohms, 5w, wirewound	Ohmite, "Axial"

Table 3. Parts List (Part 2 of 9).

Symbol	Part No.	Description	Manufacturer
R29	131-0836	Resistor, 10,000 ohms, 10 w, wirewound	Ohmite "Axial"
R30	134-2900	Resistor, 5 megohms, 5 w, 1%	Dalohm, DC-5
R31	131-0225	Resistor, 1000 ohms, 25 w, wirewound	Ohmite, 0205
R33, R34		Power determining part, used in 1000/ 500 watt only, see table 5.	
R35	131-0396	Resistor, 40,000 ohms, 200 w, wirewound	Ohmite, 0921
R36	131-0243	Resistor, 60,000 ohms, 25 w, wirewound	Ohmite, 0225
R37	134-2901	Resistor, 4 megohms, 5 w 1%	Dalohm, DC-5
R38	136-1572	Resistor, 10,000 ohms, 2 w, 10%	
R39, R40		Power determining part, see table 5	
R41, R42	136-0184	Resistor, 33,000 ohms, 1/2 w, 5%	
R43, R44	136-1568	Resistor, 6800 ohms, 2 w, 5%	
R45		Same as R6	
R46	130-0050	Potentiometer, 500 ohms, 2w	Ohmite, CLU-5011, Locking
R47, R48	136-1593	Resistor, 82,000 ohms, 2w, 10%	
R49, R50 R51, R52	136-1592	Resistor, 68,000 ohms, 2 w, 10%	
R53, R54	136-1604	Resistor, 220,000 ohms, 2 w, 10%	
R55		Same as R30	
R56, R57	136-1560	Resistor, 3300 ohms, 2 w, 10%	
R58		Same as R30	
R59		Same as R16	
R60	136-1564	Resistor, 4700 ohms, 2 w, 10%	
R61	130-0058	Potentiometer, 10,000 ohms, 2 w	Ohmite, CLU-1031 locking
R62, R63 R64, R65	131-1371	Ohmspun resistance grids, 50 ohms	States, WR-31D
R66, R67		Power determining part, used in 1000/250 watt only, see table 5	

Table 3. Parts List (Part 3 of 9).

Symbol	Part No.	Description	Manufacturer
R68		Not Used	
R69, R70		Power determining part, used in 1000/ 250 watt only, see table 5	
R71, R72		Power determining part, used in 1000/ 500 watt only, see table 5	
R73, R74	136-1140	Resistor, 470 ohms, 1/2 w, 10%	
R75	137-0738	Resistor, 150 ohms, 25 w, wirewound adjustable	Ohmite 0369
R76, R91	136-1397	Resistor, 100,000 ohms, 1 w, 10%	
R92, R93	131-0153	Resistor, 25 ohms 20 w, wirewound	Ohmite 1805
R94	Same as R76		
R95	Same as R26		
		CAPACITORS	
C1, C2	109-0025	Capacitor, var, 2.6-25 mmfd	E.F.Johnson, 148-2
C3	101-1253	Capacitor, 33 mmfd, 500 v	Elmenco, CM-20C-330J
C4	101-1251	Capacitor, 500 mmfd, 500 v	Elmenco, CM-20D-501J
C5, C6	110-1078	Capacitor, .01 mfd, 600 v	Sprague
C7	101-1252	Capacitor, 75 mmfd, 500 v	Elmenco CM-20C-750J
C8		Same as C5	
C9	110-0272	Capacitor, 500 mmfd, 3 kv	Centralab, DD30-501
C10, C11, C12	110-0264	Capacitor, .0022 mfd, 3 kv	Centralab DD-30-221
C13	110-0024	Capacitor, .02 mfd, 150 v	Centralab DDM-203
C14		Same as C9	
C15		Same as C10	
C16, C17, C18, C19	110-0233	Capacitor, .02 mfd, 600 v	Centralab, DD-203

Table 3. Parts List (Part 4 of 9).

Symbol	Part No.	Description	Manufacturer
C20, C21	110-0261	Capacitor, 150 mmfd, 3 kv	Centralab, DD-30-151
C22	110-0397	Capacitor, 500 mmfd, 30 kv	Sprague 30DK-T5
C23A, B		Same as C22	
C24	115-0424	Vacuum var, cap 25/500 pf	Jennings UCS-500
C25		Frequency determining part, see table 4	
C26		Frequency determining part, see table 4	
C27	103-1987	Capacitor, 10 mfd, 600 v	Sprague, CP70E-1EF106K
C28	103-2551	Capacitor, .05 mfd, 1 kv	Sprague, CP53B-1EG503K
C29	103-1986	Capacitor, 12 mfd, 1 kv	Sprague, CP70E-1EG126K
C30, C31	103-2552	Capacitor, 2 mfd, 600 v	Sprague, CP53B-1EF205K
C32	103-2005	Capacitor, .1 mfd, 5 kv	CD, TJH50001
C33, C34	103-2004	Capacitor, 4 mfd, 4 kv	CD, TJH40040AJ
C35	105-0401	Capacitor, .05 mfd, 3 kv	PAS 503-3M
C36	103-1992	Capacitor, 1 mfd, 4 kv	CD, TJH20060
C37	103-2553	Capacitor, .1 mfg, 600 v	Sprague, CP53B1-EF104K
C38		Same as C30	
C39, C40	103-0442	Capacitor, .1 mfd, 1 kv	Sangamo, SBB1E101004M
C41	112-0452	Capacitor, 300 mfd, 150 v	CD, TVA-1425
C42		Not used	
C43	112-1000	Capacitor, 150 mfd, 150 v	Sprague, TVL-1429

Table 3. Parts List (Part 5 of 9).

Symbol	Part No.	Description	Manufacturer
C44		Not used	
C45		Power determining part, used in 1000/250 watt only see table 5	
C46		Power determining part, used in 1000/250 watt only see table 5	
C47	238-1000	Capacitor, 0.47 mfd, 400 v	Hurst
C48, C56		Same as C10	
		INDUCTORS	
L1, L2	186-0348	RFC, 1 mh	Miller, 4652
L3	186-1391	RFC, 2.5 mh	National, R-50
L4	186-1401	RFC, 2.4 mh	National, R-100
L5		Frequency determining part, see table 4	
L6	3-021-0042	RFC, 1.5 mh	Bauer
		Frequency determining part, see table 4	
L8, L9	186-1407	Inductor, 19 μh	Johnson 232-633
L10		Power determining part, see table 5	
L11	186-0902	Filter reactor 15 h, 85 ma	Chicago, RS-1585
L12	317-0006	Modulation reactor, 65 h, 500 ma	Electro-Engineering, E9561B
L13	317-0011	Filter reactor, 10 h, 800 ma	Electro-Engineering, E5933
L14		Deleted	
L15	3-021-0041	Monitor pickup coil	Bauer
L16, L17		Not used	
L18		Same as L11	

Table 3. Parts List (Part 6 of 9).

Symbol	Part No.	Description	Manufacturer
		RELAYS	
K1	180-0393	Master start relay	Guardian, 2210-DPST-N0230
K2	180-0215-06	Final grid underdrive relay	Potter-Brumfield, KCP5, 5000 ohm coil
K3	180-0401	Overload reset relay	Automatic Electric, Series EIN
K4	180-0407	Hi/Lo power change relay (high voltage)	Advance AT/2C/ 115 VA
K5	180-0215-08	Hi/Lo power change relay (audio pad and final drive)	Potter-Brunfield, KRP11A-115 v
K6	180-0392	Crystal selector	Advance AM/2C/ 115 va
K7	180-0404	H.V. transformer primary breaker	GE CR105K003
K8, K9	180-0396	Mod. overload relay	Heinemann, CR1-617-XXA
K10	180-0406	H.V. transformer primary overload relay	Heinemann, CT1-617-XXA
K11		Same as K6	
		SWITCHES	
S1	296-0403	Switch, master start	Molex MRC 8P1
S2	299-0013	Switch, DPDT	JAN ST-52K
S3	299-0017	Switch, DPST, momentary contact	JAN ST-52R
S4		Same as S2	
S5	299-0018	Switch, DPDT, momentary contact, neutral center	JAN ST-52S
S6		Same as S2	

Table 3. Parts List (Part 7 of 9).

Symbol	Part No.	Description	Manufacturer
S7		Same as S2	
S8		Switch, dummy antenna	Bauer
S9, S10, S11	296-0411	Switch, interlock	Arco, 3DO5-8P
S12	302-0040	Air flow switch	GV-FS-3102
		METERS	
M1	368-9107	Meter, mod. plate, 0-1A	
M2	368-9106	Meter, final plate voltage, 0-5 kv	
M3	368-9107	Meter, final plate, 0-1A	
M4	368-9111	Meter, R.F. output, 0-1 ma, 0-6 a scale	
M5	368-9112	Meter, final grid, 0-50 ma	
M6	368-9113	Meter, final screen grid, 0-100 ma	
M7	368-9112	Meter, driver plate, 0-50 ma	
M8	368-9112	Meter, osc. plate, 0-50 ma	
M9	368-9114	Meter, audio plate, 0-10 ma	
		TRANSFORMERS	
T1	326-9012	High voltage transformer, 3560 v CT, 0.78 A, 2.76 kva	Electro-Engineering 11586
T2	326-9014	Voltage regulator, 500 va	Sola, 23-22-150 (60 cycle)
	326-9015		23-22-650 (50 cycle)
T3, T4	326-9009	Filament transformer	Chicago, F-530
T5	326-9008	L.V./bias transformer	UTC CG-422
T6	318-0112	Audio input transformer	UTC LS-26
T7	326-9010	Modulation transformer	Electro-Engineering, E-11591

Table 3. Parts List (Part 8 of 9).

Symbol	Part No.	Description	Manufacturer
		TUBES	
V1, V2	353-0406	Vacuum tube, type 6AG7	
V3	353-0420	Vacuum tube, type EL34/6CA7	
V4, V5	353-0432	Vacuum tube, Type 6SJ7	
V6, V9	353-0113	Vacuum tube, Type 4-400A	
		SILICON RECTIFIERS	
D1	161-9003	Bias Assembly	G1-W06
D2-D17	161-0312	Silicon rectifier, 600 v, 750 ma	1N2071
D18-D19	161-0348-06	HV rectifier assembly	IRC 67-6288
D20		Same as D2	
		FUSES	
F1-F5	261-0079	Fuse, 1.6a, 3 ag, Slo-blo	Buss
F6, F7	261-0141	Fuse, 30A-FRN-30	Buss
F8	261-0159	Fuse, 1-1/2a, 5 kv	Littelfuse
		CRYSTALS	
XL1, XL2	166-0004	Crystal, vacuum	Northern Engineering Lab, T-12A
		TERMINAL BOARDS	
TB1	477-0946	Terminal strip, 20 position	Cinch-Jones, 20-141-Y
TB2	477-0954	Terminal strip, 7 position	Cinch-Jones, 7-140-3/4 w

Table 3. Parts List (Part 9 of 9).

Symbol	Part No.	Description	Manufacturer
		MOTORS	
B1	231-0075	Blower motor, 230 v	Rotron, Tarzan 3D3
B2	238-1000	Power control motor 115 v rpm	Hurst Type AR-SM
		RECEPTACLES AND TUBE SOCKETS	
J1	287-0034	Receptacle, freq. monitor (CHASIS)	Amphenol, 31-102 BNC
J2	287-0034	Receptacle, mod, monitor (CHASIS)	Amphenol, 31-102 BNC
P1	287-0010	Plug, freq. monitor (CABLES)	Amphenol, 31-002 BNC
P2	287-0010	Plug, mod. monitor (CABLES)	Amphenol, 31-002 BNC
X1/X2	396-0049	Osc/buffer dual turret socket	Vector, 10-00-18A3-2
X5	396-1005	Socket, R.F. driver and audio amplifiers, bias rectifier	Amphenol, 77 MIP-8T
X6,X7, X8,X9	396-0209	Socket, modulators and finals	Johnson 122-275-100
X10,X11, X12	396-0210	Socket, crystals	Pomona, XS-8
X13,X14	396-1005	Socket, relays K2 and K5	Amphenol, 77 MIP-8T
X15	396-1005	Same as X3	
S12	396-0025	Socket, 9 pin min	Cinch 9JM-3
		MISCELLANEOUS	
SU1,SU2, SU3,SU4	186-1393	Parasitic suppressor	Ohmite, P-300
	3-021-0021	Osc/buffer chassis and cover	Bauer
	261-0039	Fuseholders for F1-F5, F9	Bussman, HKL-X
	261-0165	Fuse block for main line fuses, F6, F7	Bryant, B-1917
	3-021-0022	Breaker cover	Bauer

Table 4. Tuning Chart, Model 707.

Components Used						Taps Used					
Freq (kHz)	L5	L7	C24A	C25	C26	L-7/C23 Tap (a)	L-7/C24 Tap (b)	L-7/L8 Tap (c)	L-8/C26 Tap (d)	L-9/ Dummy (e)	L-9/Load(f)
540	1/4	1	1	4	4	8	8	3	18	13	19
600	1	1	1	4	4	10	10	3	22	16	23
650	1	1	1	1	1	10	10	2	8	6	16
700	1	1	1	1	1	11	12	2	10	6	15
750	1	1	1	1	1	12	13	2	12	6	15
800	1	1		2	2	8	9	2	5	6	13
850	2	1		2	2	12	13	2	6	6	12
900	2	1		2	2	13	14	2	6	6	12
950	2	1		2	2	15	16	2	6	6	12
1000	2	1		2	2	18	19	2	8	6	11
1050	2	1		2	2	20	21	2	7	6	11
1100	2	1		2	2	21	22	2	8	6	11
1150	2	1		2	2	22	23	2	8	6	11
1200	2	2		2	2	2	2	2	9	6	11
1250	2	2		2	2	2	3	2	9	6	11
1300	3	2		2	2	2	3	2	11	6	12
1350	3	2		2	2	3	4	2	15	6	14
1400	3	2		2	2	4	5	2	15	6	14
1450	3	2		2	2	5	6	1 1/2	14	8	14
1500	3	2		2	2	6	7	1 1/2	14	8	14
1550	3	2		2	2	8	9	1 1/2	12	6	12
1600	3	2		2	2	10	11	1 1/2	11	6	11

Table 4. Tuning Chart, Model 707 (Continued).

L5

(1) P/N 187-1148 Miller 43A103CB/
(2) P/N 187/1147 Miller 43A474CB1
(3) P/N 187/1146 Miller 43A224CB1
(4) P/N 186-0068 Delevan 2500-28
Used in series (1000 μh)

L7

(1) P/N 186-1409 EFJ 200-105 (120 μh)
(2) P/N 186-1410 EFJ 200-206 (50 μh)

C24A

(1) P/N 115-0107 Jennings JCS 500 (500PF/7.5 kv)

C25/C26

(1) P/N 101-1206 Sangamo (.003 μf/6kv)
(2) P/N 101-1204 Sangamo (.002 μf/6kv)
(3) P/N 101-1207 Sangamo (.001 μf/6kv)
(4) P/N 101-1214 Sangamo (.005 μf/6kv)

NOTES

a. End turn is counted as No. 1

b. Position will depend on loading required - move right (decrease turns) to tighten coupling. Move left (increase turns) to loosen coupling. C23/C24 taps usually 1 turn apart--set C23 tap for best efficiency.

c. End turn on right side of L-7 counted as No. 1.
d. Turn nearest front panel counted as No. 1
e. Top turn counted as No. 1
f. L8/L9/C26 combination selected to give loading of 65-75 ohms Zero reactance measured at input to L-8 with 50 ohm load.

Table 5. Power Determining Parts--1000/250 Watts.

Symbol	Part Number	Description	Manufacturer
*R13	131-0751	Resistor, driver cathode, 5000 ohms 5 w, wirewound	Ohmite "Axial"
R39	136-1536	Resistor, audio input pad, 330 ohms, 2 w, 10%	
R40	131-1533	Resistor, audio input pad, 270 ohms, 2 w, 10%	
R66, R67	131-0290	Resistor, K4 transient suppressor, 250,000 ohms, 50 w, wirewound	Ohmite 0428
R69, R70	131-0713	Resistor, current limiting, 50 ohms, 5 w, wirewound	Ohmite "Axial"
C45	105-0401	Same as C35	
C46	103-2003	Capacitor, 1500 volt power supply filter, 6 mfd, 2 kv	CD, TJL-20060
L10	317-0010	Reactor, 1500 volt power supply filter, 8 h, 400 ma	UTC S-35
		POWER DETERMINING PARTS--1000/500 WATTS	
R13	131-0750	Resistor, driver cathode 3000 ohms, 5 w, wirewound	Ohmite "Axial"
R39	136-0528	Resistor, audio input pad, 150 ohms, 2 w, 10%	
R40	136-0538	Resistor, audio input pad, 390 ohms, 2 w, 10%	
R71	137-0791	Resistor, power trimming 1500 ohms, 200 w	Ohmite 1362B
R72	131-0385	Resistor, power dropping 1500 ohm, 200 w	Ohmite 0910

* R13 may also be a 4000 or 3000 ohm resistor--depends on frequency and final grid coil efficiency.

Table 6. Cable Table, Low Voltage Harness (Part 1 of 8).

All are #18 wires in main harness except as noted.

Wire No.	From	To	Remarks
1	F6	K1	#16 wire
2	F7	K1	#16 wire
3	F6	K7	#10 wire heavy insulation
4	F7	K7	#10 wire heavy insulation
5	K1	F1	
6	S12-8	K1	
7	F1	TB1-8	
8	S12-1	TB1-9	
9	S12-1	S-1 (red)	
10	CB10-9	S-1 (white)	
11			
12	T5-11	V5-2	6.3 ac
13	T5-18* or 20	V5-7	6.3 ac
14	S12	T2-H1	#16 wire
15	K1	T2-H4	#16 wire
16	K1	F5	
17	K1	Blower	
18	K1	F3	
19	K1	F2	
20	T2-X1	T4-4	#16 wire
21	T2-X2	T4-1	#16 wire
22	T4-3	T3-4	#16 wire
23	T4-4	T3-3	#16 wire
24	T3-4	F4	
25	T3-3	S2	

*Alternate connection in some equipment--depends upon T-5 filament winding phasing.

Table 6. Cable Table, Low Voltage Harness (Part 2 of 8).

All are #18 wires in main harness except as noted.

Wire No.	From	To	Remarks
26	S2	S11	
27	S11	T5-1	
28	F4	T5-2	
29	F4	TB1-16	
30	F4	S6	
31	S6	S5	
32	S5	S7	
33	T3-3	CB3-9	
34	S6	CB3-10	
35	S6	K4	
36	T3-1	K4	
37	T4-2	TB2-7	
38	S7	TB2-6	
39	S7	TB1-18	
40	S6	TB1-17	
41	T4-2	Power control motor-common (Term. 2)	
42	S5	Power control motor-lower (Term. 1)	
43	S5	TB1-14	
44	S5	Power control motor-raise (Term. 3)	
45	S5	TB1-15	
46	F2	CB4-5	
47	F2	K8	
48	K8	K9	

Table 6. Cable Table, Low Voltage Harness (Part 3 of 8).

All are #18 wires in main harness except as noted.

Wire No.	From	To	Remarks
49	K9	K10	
50	K10	CB4-1	
51	K10	K7	
52	S10	CB10-5	
53	S9	S10	
54	CB4-3	S9	
55	CB10-6	K7	
56	TB1-12	S3	
57	TB1-13	S4	
58	S4	CB4-2	
59	S3	F3	
60	TB1-7	Ground	Ground at F6/F7 Mounting bolt
61	TB1-11	S3	
62	S3	CB4-4	
63	T5-15	V3-Pin 7	
64	T5-17	V3-Pin 2	
65	Not used		
66	R95	K1	
67	T5-3	CB8-2	
68	T5-7	CB8-4	
69	T5-5	L18	
70	C27	L18	
71	C27	M8 (Positive)	
72	M8 (Negative)	TB2-1	Osc. plate
73	C27	CB9-6	
74	C27	TB2-5	Buffer plate
75	CB8-3	L11	

Table 6. Cable Table, Low Voltage Harness (Part 4 of 8).

All are #18 wires in main harness except as noted.			
Wire No.	From	To	Remarks
76	CB8-3	CB-7	Connects to C28
77	L11	C29	
78	C29	M7 (Positive)	
79	M7 (Negative)	CB9-2	Driver plate
80	C29	CB7-3	
81	CB7-6	CB1-12	Audio plate and screen
82	CB7-4	K7	
83	CB7-8	K7	
84	CB7-9	V6 screen	
85	T5-8	CB5-1	
86	T5-10	CB5-6	
87	CB5-10	R27	
88	R27	C31	
89	CB5-9	R27	
90	TB2-4	J1	RG-174/U coax
91	TB2-3	T5-15	
92	TB2-2	T5-17	
93	Buffer out	V3 Pin 5	Buffer output to driver grid
94	R12	CB9-4	
95	R12	CB3-12	
96	L5	M5 (negative)	
97	M5 (positive)	CB10-7	
98	CB10-8	T4-6	
99	T4-6	M2 (negative)	
100	M2 (positive)	CB6-2	

Table 6. Cable Table, Low Voltage Harness (Part 5 of 8).

All are #18 wires in main harness except as noted.			
Wire No.	From	To	Remarks
101	T4-6	K8	
102	K8	M3 (positive)	
103	M3 (negative)	R19	
104	R19	TB1-6	
105	CB6-1	TB1-4	
106	R17/R18	M6 (negative)	Final screens
107	M6 (positive)	R35/R36	
108	Not used		
109	Not used		
110	Mod. Mon. Pickup coil	J2	R6-174/U Coax
111	T4-7	V8 (fil)	#12 thin wall
112	T4-5	V9 (fil)	#12 thin wall
113	T4-5	V8 (fil	#12 thin wall
114	T4-7	V9 (fil)	#12 thin wall
115	T3-7	V6 (fil)	#12 thin wall
116	T3-5	V6 (fil)	#12 thin wall
117	T3-7	V7 (fil)	#12 thin wall
118	T3-5	V7 (fil)	#12 thin wall
119	T3-6	M1 (Positive)	
120	M1 (Negative)	K9	
121	CB2-3	C38	
122	CB2-7	C37	
123	V4 Pin 5/3	R46	
124	V5 Pin 5/3	R46	
125	R46	CB2-4	

Table 6. Cable Table, Low Voltage Harness (Part 6 of 8).

All are #18 wires in main harness except as noted.

Wire No.	From	To	Remarks
126	CB2-9	M9 (Positive)	
127	M9 (negative)	Ground at C37	
128	K7	K10	#10 HW
129	K7	T1	#10 HW
130	K10	T1	#10 HW
131	CB6-5	TB1-5	
132	CB6-5	T4-6	
133	TB1-1	CB3-4	
134	TB1-2	CB3-7	
135	CB3-8	T6-1	
136	CB3-5	T6-2	
137	CB1-10	C31	
138	CB1-13	CB2-3	
139	CB2-1	T6-8	
140	CB2-5	T6-9	
141	V5-Pin 4	T6-7	
142	V4-Pin 4	T6-10	
143	V4-Pin 6	V5-Pin 6	
144	CB2-8	V5-Pin 6	
145	V4-Pin 7	V5-Pin 7	
146	V4-Pin 2	V5-Pin 2	
147	Not used		
148	R19	R20	
149	CB5-4	C30	
150	K1	S12 (#16 wire)	

Table 6. Cable Table, Low Voltage Harness (Part 7 of 8).

All are #18 wires in main harness except as noted.			
Wire No.	From	To	Remarks
151	Not used		
152	Not used		
153	F5	R68	
154	C42	Blower	
155	R68	Blower	
	Non-Numbered Jumper Wires Not in Harness		
	C37	Ground	
	C31	Ground	
	C38	Ground	
	K9	Ground	
	R59	Ground	
	R59	K9	
	R59	R59	Grounded terminal to tap
	T3-2	T3-4	#16 wire
	T3-1	T3-3	
	C30	Ground	
	CB6-7	C36	
	C36	Ground	
	C33	Ground	
	L13	Ground	
	T4-2	T4-4	
	T4-1	T4-3	
	C29	Ground	
	C27	Ground	

Table 6. Cable Table, Low Voltage Harness (Part 8 of 8).

All are #18 wires in main harness except as noted.			
Wire No.	From	To	Remarks
	R20	Ground	
	R16	K8	2 wires from each end of R16
	R16	R16	Terminal closest to panel to tap
	K1	K1	Start contact to coil
	Power control motor		Connect common poles
	S3	S4	
	CB10-9	K1 coil	

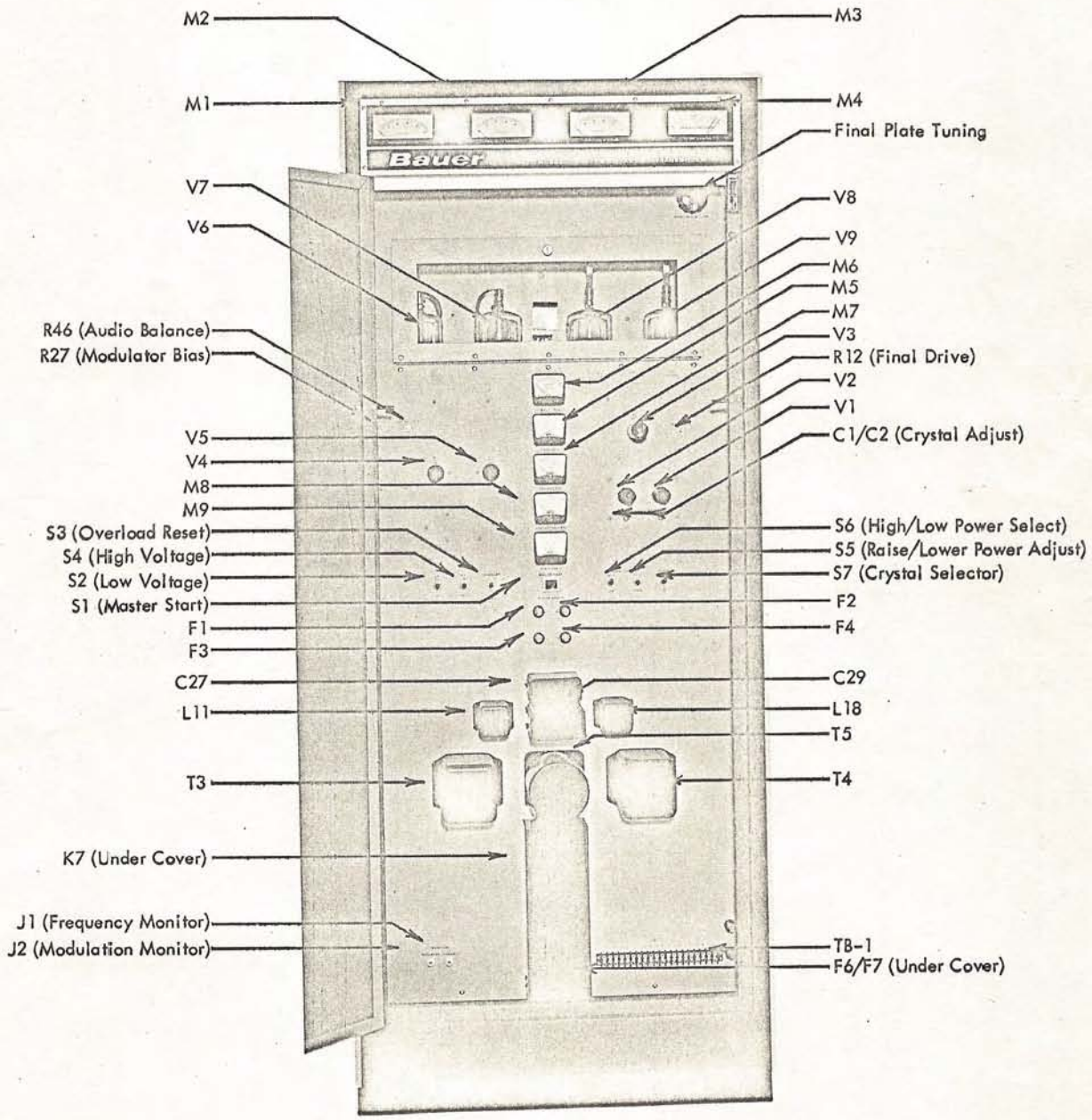


Figure 4. Front View of Bauer Model 707 Broadcast Transmitter.

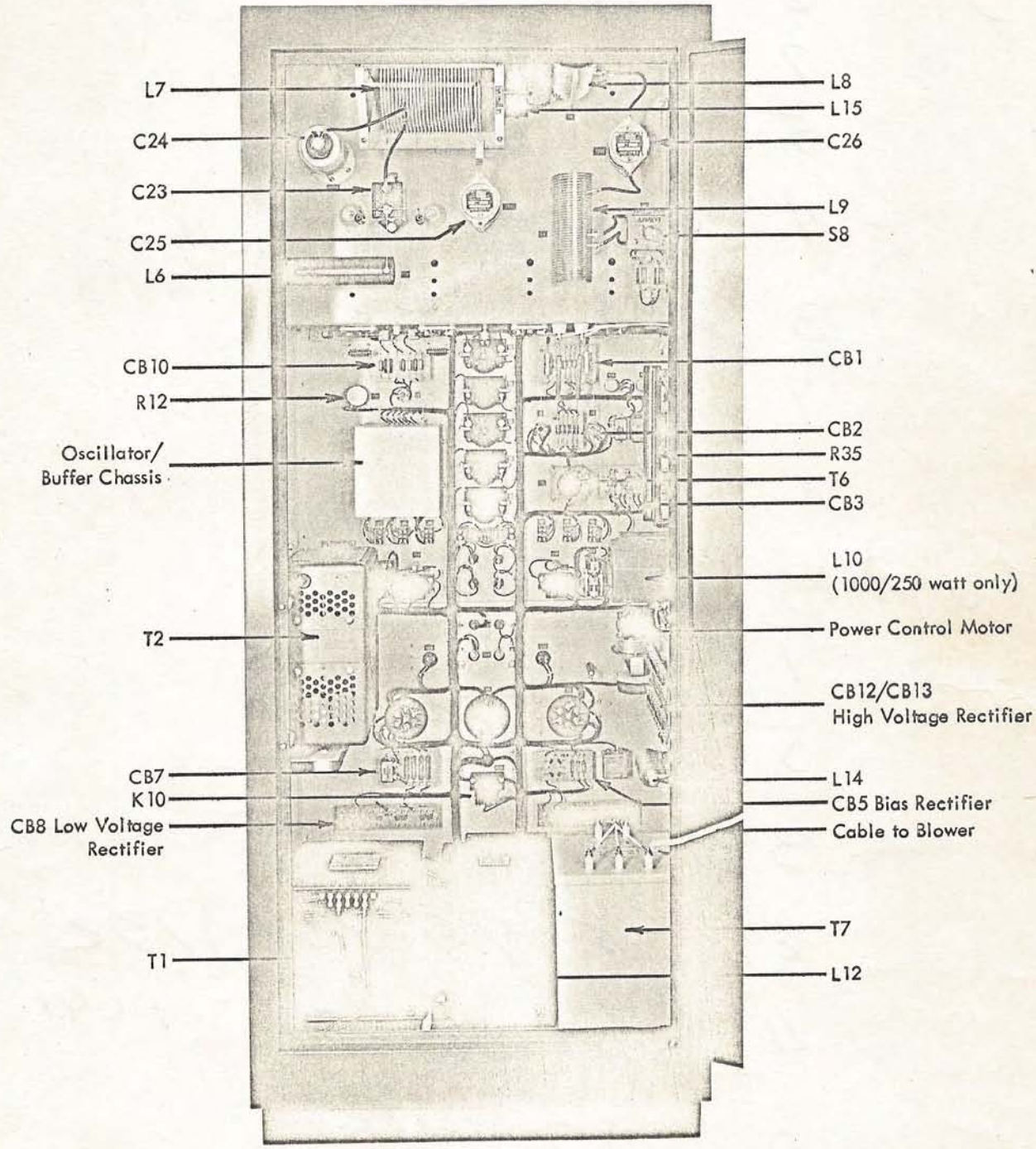
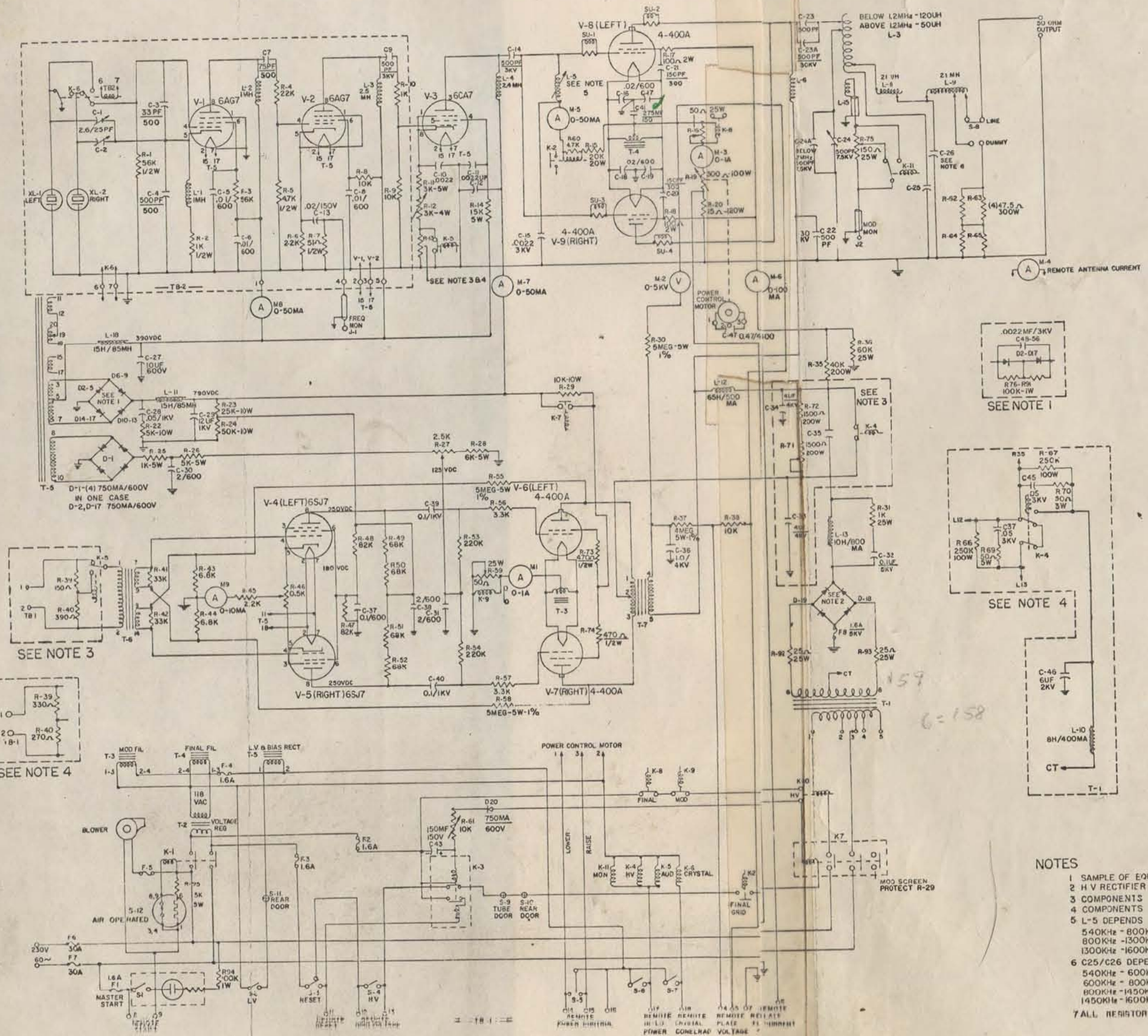


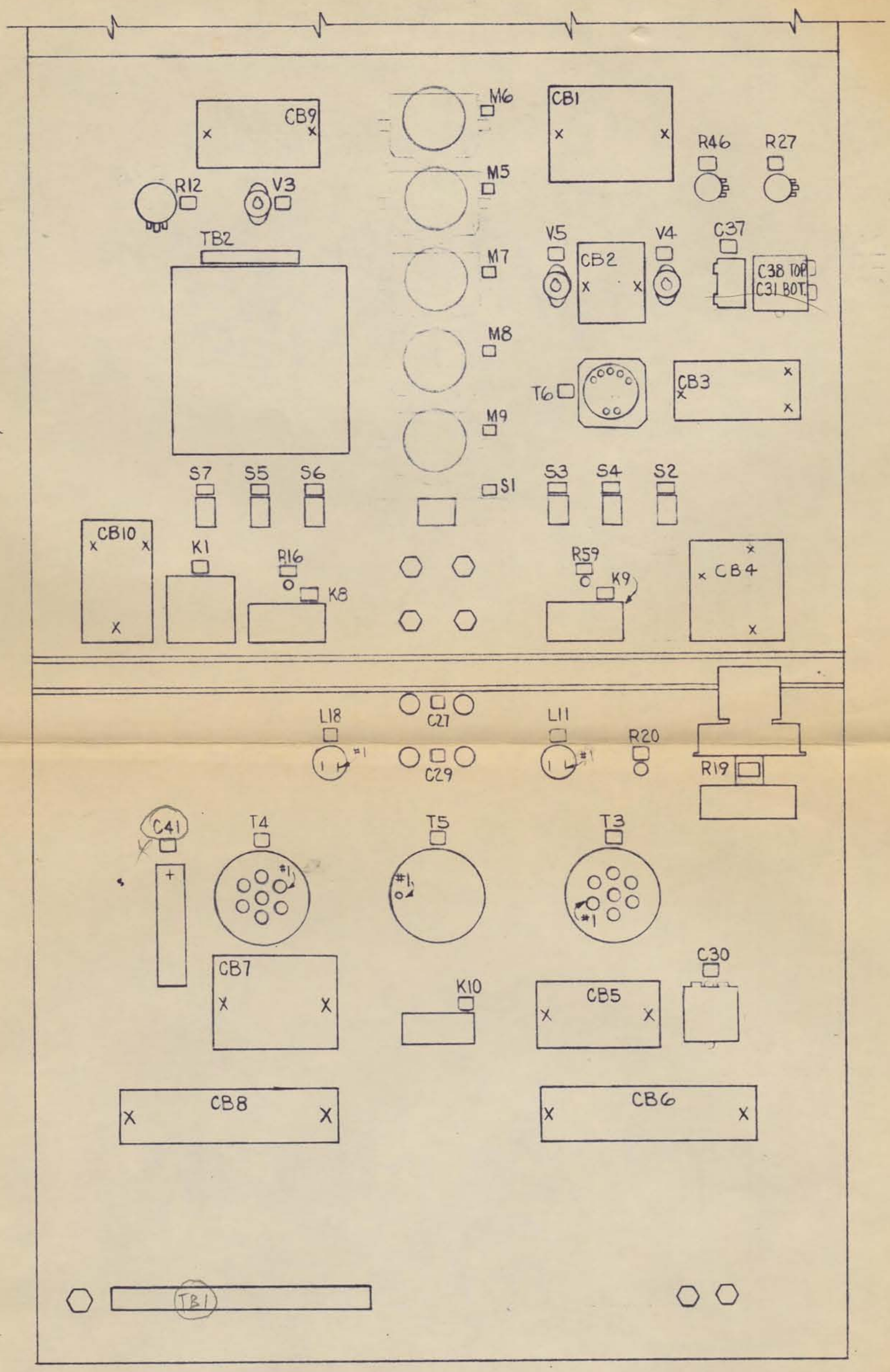
Figure 5. Rear View of Bauer Model 707 Broadcast Transmitter.



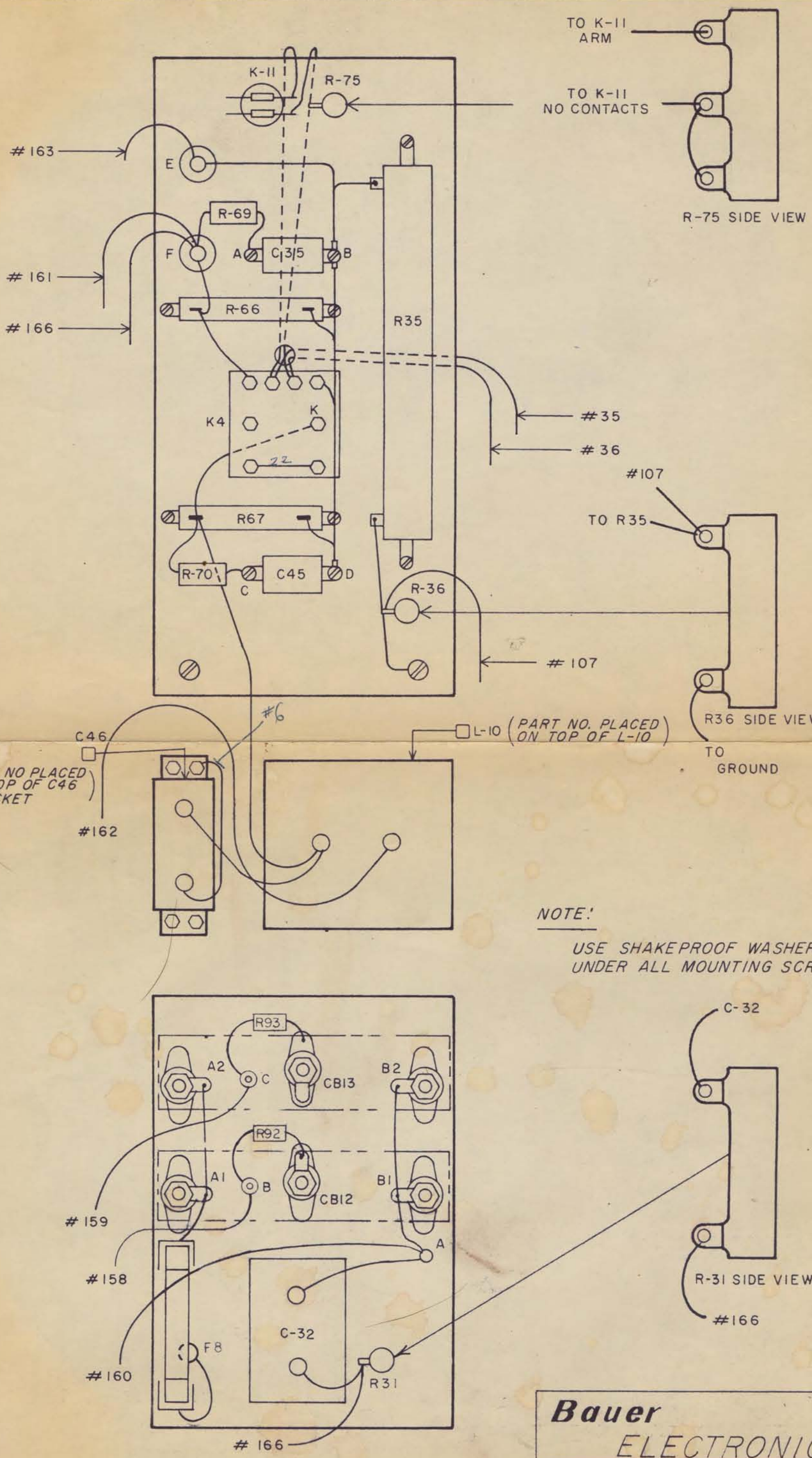
NOTES

1. SAMPLE OF EQUALIZATION PROVIDED ON L V RECTIFIERS
2. H V RECTIFIER MADE UP OF TWO ENCAPSULATED SECTIONS
3. COMPONENTS SHOWN FOR 1000/500W MODEL R-13 IS 4K-5W
4. COMPONENTS FOR 1000/250W MODEL R-13 IS 5K-5W
5. L-5 DEPENDS ON FREQUENCY
   - 540KHz - 800KHz - P/N 187-1148 - MILLER 43A103CBI
   - 800KHz - 1300KHz - P/N 187-1147 - MILLER 43A474CBI
   - 1300KHz - 1600KHz - P/N 187-1146 - MILLER 43A224CBI
6. C25/C26 DEPENDS ON FREQUENCY
   - 540KHz - 600KHz - P/N 101-1214 .005UF/6KV
   - 600KHz - 800KHz - P/N 101-1206 .003UF/6KV
   - 800KHz - 1450KHz - P/N 101-1204 .002UF/6KV
   - 1450KHz - 1600KHz P/N 101-1207 .001UF/6KV
7. ALL RESISTORS TWO WATT UNLESS OTHERWISE NOTED.

Figure 7. Schematic Diagram.



REAR VIEW
FRONT PANEL
INSTALLATION DIAGRAM
№ 1



Bauer
ELECTRONICS

HIGH VOLTAGE RECTIFIER
AND POWER CONTROL

KDTA

PACKING SLIP BOX 1 Page 1

Serial # 311
Date 7-22-66

Item	Order	Ship	Description
			(Package 1)
1	1		Component board (CB-1)
2	2		Resistors, 220k, 2w (R53, R54)
3	4		Resistors, 68k, 2w (R49, R50, R51, R52)
4	2		Capacitors, .1 mfd, 1 kv (C39, C40)
			(Package 2)
5	1		Component board (CB-2)
6	2		Resistors, 6.8k, 2w, 5% (R43, R44)
7	1		Resistor, 2.2k, 2w (R45)
8	2		Resistors, 82k, 2w (R47, R48)
			(Package 3)
9	1		Component board (CB-3)
10	1		Resistor, 330 ohms, 2w (R39)
11	1		Resistor, 270 ohms, 2w (R40)
12	1		Resistor, 5k, 5w, ww "axial" (R13)
13	1		Octal Socket
14	1		Relay, Potter-Brumfield Type KRP11A, 115 v coil (K-5)
			(Package 4)
15	1		Component board (CB-4)
16	1		Capacitor, 150 mfd, 150 v (C43)
17	1		10k, 2w pot (R61)
18	1		Relay, socket and cover (K3)
			(Package 5)
19	1		Component board (CB-5)
20	1		Resistor, 1k, 5w, ww "axial" (R-25)
21	1		Resistor, 5k, 5w, ww "axial" (K-26)
22	1		Resistor, 6k, 5w, ww "axial" (R-28)
23	1		~~Octal socket~~ GI 1N60 diode assembly ~~#~~ No
~~24~~	~~1~~		~~Turret assembly~~
			(Package 6)
25	1		Component board (CB-6)
26	1		Resistor, 5 megohms, 5w, 1% (R-30)
27	1		Resistor, 4 megohms, 5w, 1% (R-37)
28	1		Resistor, 10k, 2w (R-38)

ITEM	Order	Ship	Description
			(Package 7)
29	1		Component board (CB-7)
30	1		Resistor, 5k, 10w (R-22)
31	1		Resistor, 25k, 10w (R-23)
32	1		Resistor, 50k, 10w (R-24)
33	1		Resistor, 10k, 10w (R-29)
34	1		Capacitor, .05 mfd, 1 kv (C-28)
			(Package 8)
35	1		Component board (CB-8)
			(Package 9)
36	1		Component board (CB-9)
37	1		Resistor 3000 ohm, 5 w (R-11)
38	1		Resistor, 15k, 5w, ww "axial" (R-14)
39	3		Capacitor, .0022 mfd, 3 kv (C10, C11, C12)
40	1		Capacitor, 500 mmfd, 3 kv (C-14)
41	1		RF choke 2.4 mh (L-4)
			(Package 10)
42	1		Component board (CB-10)
43	1		Resistor, 20k, 20w, ww (R-15)
44	1		Resistor, 4.7k, 2w (R-60)
45	1		Resistor, 100k, 12, (R-99)
46	1		Octal Socket
47	1		Relay, Potter-Brumfield Type KCP5, 5000 ohm coil (K2)
			(Package 11)
48	18 ~~22~~		Silicon diodes (1 spare)
49	16		Resistors, 100k, 1w (diode equalizing)
50	8		Capacitors, .0022 uf, 3 kv (diode equali'ng)
			(Package 12)
51	10'		Insulating tubing
52	10'		Solder
53	20'		#20 tinned solid wire
54	9		Ground lugs, #6 hole, 11/16" long
55	10		6-32 x 3/8" BH screws
56	3		6-32 x 1/2" BH screws
57	13		6-32 kep nuts
~~58~~	~~1~~		~~Soldering Iron~~
59	1		Kit IB
60	1		707 IB

Also Fuses
(2) H.V. Rectifier Sockets
(2) 6AB7 Tubes
(2) 6S-J7 "
(1) EL-34 "

KDTA

PACKING SLIP

BOX 2 Page 1

Serial # 311
Date 10-20-66

Item	Order	Ship	Description
			Package 1 - Hardware
			Box #1 (6-32 nuts)
1	144		6-32 kep nuts
2	10		6-32 hex nuts
			Box #2 (6-32 screws)
3	25		6-32 x 3/8" PH painted
4	50		6-32 x 3/8" PH
5	12		6-32 x 3/8" PH painted (brown)
6	12		6-32 x 1/2" PH
7	6		6-32 x 3/4" PH painted
8	2		6-32 x 1" BH
9	23		6-32 x 1¼" PH painted
10	2		6-32 x 1½" PH painted
11	4		6-32 x 1/4" PH
12	25		6-32 x 3/4" BH
13	12		6-32 x 3/4" PH
14	12		6-32 x 7/8" PH
			Box #3 (8-32 screws)
15	4		8-32 x 5/8" BH
16	18		8-32 x 5/8" PH painted
17	2		8-32 x 3/4" PH painted
18	14		8-32 x 3/8" BH
19	16		8-32 x 3/8" self tapping
20	11		8-32 x 1/2" BH
21	2		8-32 x 3/8" BH painted
			Box #4 (9-32 nuts)
22	16		8-32 hex nuts
23	6		8-32 kep nuts
			Box #5 (Washers)
24	20		#6 shakeproof
25	13		#8 "
25	31		#10 "
27	20		#6 extruded fiber
28	6		#10 " "
29	16		#8 fiber
30	4		#6 metal washers
31	2		#8 metal washers
32	8		#10 metal washers
33	18		1/4" metal washers

Note - screws no longer supplied painted

Item	Order	Ship	Description
			Box #6 (10-32 screws)
34	20		10-32 x 3/8" BH
35	31		10-32 x 1/2" BH
36	14		10-32 x 1/2" BH painted (brown)
37	4		10-32 x 1/2" PH painted
38	6		10-32 x 5/8" BH
39	2		10-32 x 3/4" PH painted (brown)
40	2		10-32 x 1" PH
			Box #7 (Spacers)
41	23		5/8" spacers for #6 screws
			Box #8 (10-32 nuts)
42	75		10-32 kep nuts
43	25		10-32 hex nuts
			Box #9 (¼"-20 screws)
44	24		1/4"-20 x 3/4" HH
45	4		1/4"-20 x 1" RH painted
			Box #10 (¼"-20 nuts)
46	40		1/4" x 20 kep nuts
			----------Package 2---------- Hdwe. Box
47	3		Octal sockets
48	5		Fuse holders, Indicator Type, Bussman HKL-X
			----------Package 3----------
49	3		Capacitors, 2 mfd, 600 v, bathtub (C-30, C-31, C-38)
50	2		Ground leads (for C-30, C-31, C-38)
			---------Package 4---------- Pkg. 14
51	1		Capacitor, .1 mfd, 600 v, bathtub (C-37)
52	1		Ground lead for C-37
			---------Package 5---------- Pkg. 14
53	4		Switches, ST-52K (S-2, S-4, S-6, S-7)
54	1		Switch, ST-52R (S-3)
55	1		Switch, ST-52S (S-5)
			----------Package 6----------
56	1		Capacitor, 300 mfd, 150 v (C-41) w/lugs attached
57	1		1-3/8" plastic cable clamp

Item	Order	Ship	Description
			---------Package 7----------
57	1		Breaker cover hardware including
58	8		6-32 x 3/8" PH screws
59	8	Installed	6-32 x 3/8" PH screws painted (brown)
60	8		6-32 kep nuts
61	4		Friction catches
			---------Package 8----------
62	3		Cone type insulators, 1/2"
63	1		Coil, final grid, (determined by frequency) with C-15 (.0022 mf, 3 kv) attached ~~Miller 43A 103CB1, .6 mh to 1.25 mh 500 kc to 800 kc~~ ~~Miller 43A474CB1, .205 mh to .580 mh, 800 to 1300 kc.~~ Miller 43A224CB1, .138 mh to .187 mh, 1300 kc to 1700 kc.
			----------Package 9----------
64	40'		#18 wire
65	15'		#6 plastic tubing
66	20'		Lacing cord
67	16'		#10 wire
68	8"		Spiral Wrap
			----------Package 10---Pkg. 14
69	14		3/8" plastic cable clamps
70	2		3/4" plastic cable clamps
71	14		3/16" plastic cable clamps
72	4		1/2" plastic cable clamps
73	13		5/16" plastic cable clamps
74	2		5/8" plastic cable clamps
			---------Package 11---Pkg. 14
75	46		Terminal lugs (blue)
76	14		Terminal lugs (yellow)
77	8		Terminal lugs (red)
			---------Package 12---Pkg. 14
78	2		Resistors, 100 ohm, 2w, 10% (R-17, R-18) w/terminal lug attached
79	2		Resistors, 3.3k, 2w, 10% (R-56, R-57)
80	2		Resistors, 33k, ½w, 5% (R-41, R-42)
81	2		Resistors, 470 ohm, ½ w, 10% (R-73,R-74) w/terminal lug attached.

PACKING SLIP

BOX 2 Page 4

Item	Order	Ship	Description
			----------Package 13----------
82	2		Parasitic suppressors, Ohmite P-300 (SU1 - SU3)
83	2		Switches, rear door Interlock Acro 3D05-8PST (S-10, S-11)
			----------Package 14----------
84	1		HV rectifier panel
85	1		Power control panel
86	2		1½" cone insulators
87	7		1" pillar insulators
88	6		1½" stand-off insulators w/jack attached
89	3		1" square insulators
90	2		60A fuse clips
91	1		Resistor, 1000 ohms, 25w (R-31) including: 1 - 10-32 x 2½" RH screw 2 - #10 extruded fiber washers 1 - #10 metal washer 1 - #10-32 kep nut
92	1		Resistor, 40k, 200 w (R-35)
93	1		Resistor, 60k, 25w (R-36) including: 1 - 10-32 x 2-3/4" RH screw 2 - #10 extruded fiber washers 1 - #10 metal washer 1 - 10-32 kep nut
94	2		Resistors, 250k, 50w (R-66/R-67)
95	2		Resistors, 50 ohm, 5w (R-69/R-70)
96	1		Resistor, 50 ohm, 25w, adjustable (R-75) including: 1 - 10-32 x 2-3/4" RH screw 2 - #10 extruded fiber washers 1 - #10 metal washer 1 - #10-32 kep nut
97	1		Capacitor, .1 mfd, 5 kv (C-32 w/hardware
98	2		Capacitors, .047 mfd, 1.6 kv (C-35, C-45)
99	1		Relay, Advance AT/2C/115 VA (K4)
100	1		Relay, Advance AM2C (K11) w/hardware
101	4		#8 solder lugs
102	1		Bus bar 250-124
103	1		Bus bar 250-125
104	1		Bus bar 250-122
105	1		Bus bar 250-123
			**********
106	1		Set mini markers 0~~-49~~ 3,4-128-129-130
107	1		Set mini markers 100-132
108	1		3k, 4w pot (R-12)
109	1		500 ohm, 2w, pot (R-46)
110	1		2500 ohms, 2w pot (R-27)
111	1		Audio input transformer, UTC LS-26 (T-6)
112	1		Switch (S-1) including 2 pilot lamps installed

Item	Order	Ship	Description
113	2		Relays, Heinemann CR1-617-XXA (K-8,K-9)
114	1		Relay, Guardian (K-1)
115	2		Filament transformers, Chicago F-530 (T-3, T-4)
116	1		Relay, Heinemann CT1-617-XXA (K-10)
117	1		Relay, HV contactor (K-7)
118	1		Fuse block (30A)
119 Chg. 14	2		Receptacles, Amphenol 31-102
120	1		Terminal board, 20 position
121	1		LV power transformer, UTC-CG-422 (T-5)
122	3		Meter, 0-50 ma (M-5,M-7, M-8)
123	1		Meter, 0-100 ma (M-6)
124	1		Meter, 0-10 ma (M-9)
125	1		Resistor, 50 ohm, 25w, ww, adjustable (R-16) w/wires attached and including: 1 - 6-32 x 3" RH painted screw 2 - 6-32 kep nuts 2 - #10 extruded fiber washers 1 - #6 metal washer
Chg. 14			
126	1		Resistor, 50 ohm, 25w, ww, adjustable (R-59) w/wires and ground lug attached and including: 1 - 6-32 x 3" RH painted screw 2 - 6-32 kep nuts 2 - #10 extruded fiber washers 1 - #6 metal washer
127	1		Capacitor, 10 mfd, 600 v (C-27)
128	1		Capacitor, 12 mfd, 1 kv (C-29)
129	2		Filter chokes 15 h, 85 ma (L-11, L-18)
130 Chg 14	1		Resistor, 15 ohm, 20 w ww (R-20 w/ground lug attached and including the following: 1 - 6-32 x 2½" RH painted screw 2 - 6-32 kep nuts 2 - #10 extruded fiber washers 1 - #6 metal washer
131	1		Motor rheostat assembly (R-19)
132	1		Oscillator-buffer assembly
133 Chg. 14	3		Bus bar assemblies (250-119, 120, 121)
134	2'		#12 bus bar
135	2		Meters (0-1 amp)
136	1		Meter (0-5 kv)
137	1		Meter (0-6 RFA)
138	1		Airflow switch assembly (S-12)
139	1		~~Capacitor, 2 mfd, 1 kv (C-42) w/mounting brackets~~
140	1		~~Resistor, 500 ohms, 50 w (R-68)~~
141 Chg. 14	2		Plugs, Amphenol 31-002
142	1		Breaker cover

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PACKING SLIP

Box 3 Page 1
Serial # 311
Date 10-20-66

Item	Order	Ship	Description
			Package 1
1	4		2½" pillar insulators
2	1		1½" feed-thru insulators
			Package 2
3	2		200-109 assembly
4	1		200-110 assembly
5	1		200-118 assembly
6	1		Shorting bar
7	4		10-32 x ½" BH painted screws
8	4		#10 shakeproof washers
			Package 3
9	1		1 3" shaft and bearing for C-24
10	1		Spinner knob
11	2		1/4" to 1/4" coupling
			Package 4
12	1		3/4" rubber grommet
13	4		Lord shock mounts
14	1		ground strap
			Package 5
15	1		Bus bar #250-126
16	1		Bus bar #250-127
17	2		Bus bar #250-128
18	1		Bus bar #200-112
19	1		Ground wire #250-129
20	1		HV wire #250-131
21	1		HV wire #250-132
22	12"		HV wire w/insulated terminal lug on one end (yellow)
23	6"		HV wire w/insulated terminal lug on one end (yellow)
24	1		Connector assembly #200-101,
			or ~~Connector assembly #200-101A~~
~~25~~	~~1~~		~~Connector assembly #200-115~~ (used only when padder capacitor is used)
26	1		Connector assembly #200-103
			or ~~Connector assembly #200-103A~~
27	1		Connector assembly #200-105
			or ~~Connector assembly #200-105A~~
28	1		Connector assembly #200-106
			or ~~Connector assembly #200-106A~~
29	1		Connector assembly #200-107
30	1		Connector assembly #200-108

****

Low Voltage Harness

Item	Order	Ship	Description
31	2		Resistors, 5 meg, 5w, w/terminal attached (R-55, R-58)
32	4		Ohmspun resistance grids, 50 ohm R-62, R-63, R-64, R-65)
~~33~~	~~1~~		~~Capacitor, 200 mmf, Jennings Type JCS~~ (C-24A) (used on lower frequencies only)
34	1		Capacitor, 25 - 500 mmf, Jennings Type UCS (C-24)
35	1		Capacitor, .002 mfd, (C-25)
36	1		Capacitor, .002 mfd, (C-26)
37	1		Capacitor, .001 mfd, 12.5 kv (C-23) including 2 - ¼-20 x 1½" RH painted screws 4 - ¼" rubber grommets 2 - #12 metal washers 2 - ¼-20 kep nuts 2 - ¼-20 hex nuts
38	1		Capacitor, 500 mmf, 20 kv (C-22) including 1 - TX-2 terminal 1 - 1½" cone insulator 1 - 8-32 x 3/8" PH painted screw 1 - 8-32 x 3/8" PH screw 1 - 8-32 x ¼" PH painted screw 1 - #8 shakeproof washer 1 - #6 shakeproof washer 1 - 6-32 x 3/8" PH screw
39	1	BO	Tank coil 50 uh, EFJ Type 200-206 (L-7) or ~~Tank coil, 120 uh, EFJ Type 200-105 (L-7)~~ (depends on frequency)
40	1		Mod. monitor pick-up coil (L-15)
41	2		Coils, 31 uh, EFJ Type 232-610 (L-8, L-9)
42	1		RF choke, 1.5 mh (L-6)
43	1		HV harness
44	4'		Spiral wrap

Item	Order	Ship	Description
45	1		Parasitic Suppressor assembly including 2 - Ohmite P-300 suppressors 1 -- #250-134 connector assembly
46	2		Final tube feed-through assembly including 1 - 2½" feed-thru insulator 1 - ¼-20 x 3" RH screw 1 - ¼" split washer 2 - ¼" metal washers 2 - ¼-20 hex nuts 1 - #190-105 plate lead 1 - HR6 plate connector
47	2		Modulator tube feed-through assemblies including 1 - 1½" feed thru insulator 1 - 10-32 x 2¼" RH screw 1 - #10 split washer 1 - #10 metal washer 1 - 10-32 hex nut 1 - #190-105 plate lead 1 - HR6 plate connector
48	1		Capacitor, 1 mfd 4 kv w/ground lead attached (C-36) including 2 - spade type brackets 4 - 10-32 kep nuts
49	2		Capacitors, 4 mfd, 4 kv (C-33, C-34)
50	1		Capacitor, 6 mfd, 2 kv (C-46) including 2 - footed brackets 4 - 10-32 x 5/8" PH screws 4 - #10 shakeproof washers
51	1		Reactor, 8H, 400 ma (L-10)
52	1		Blower motor, Rotron saucer fan
53	1		Tool kit including 4 - nut drivers #8, #10, #12, #14 1 - Phillips screw driver 1 - Wrench 1 - Champ hand tool 1 - Resistor, 4k, 5w "axial" 1 - Resistor, 3k, 5w "axial" 1 - Wire stripper

Bauer Electronics Corporation

PACKING SLIP

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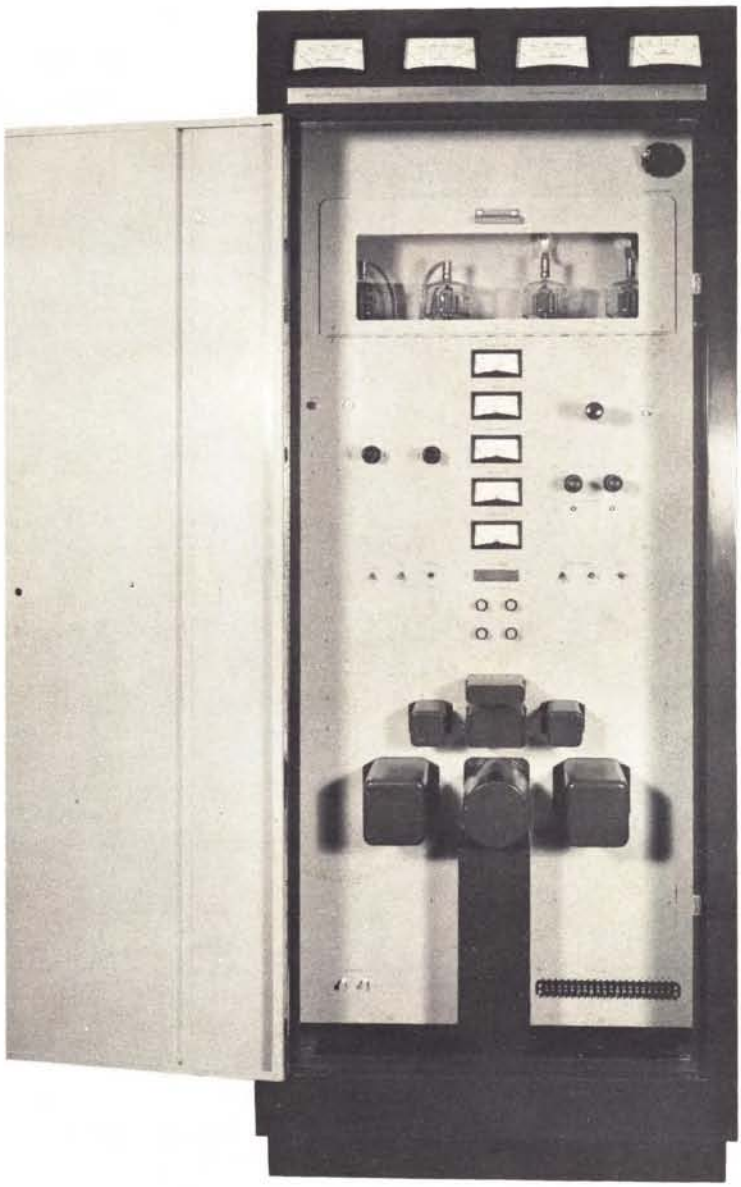
NO.	DATE ENTERED	DATE SHIPPED
3846-1	1-/21/66	4/11/67
ORDER NO.	SALESMAN	SHIP VIA
		PP Prepaid
TERMS		

ITEM	QUANTITY ORDER	QUANTITY SHIP	DESCRIPTION	UNIT PRICE	TOTAL
1		1	Diode Assembly GI Type W06		
2		1	Resistor 10k, 10w (R-29)		
3		1	Capacitor 300 mfd 150 v (C-41)		
4		1	Tank Coil EFJohnson Type 200-206 (L-7)		
5		1	Vacuum Crystal, Type T-12A 1400 kc		
			Above items missing from No. 3846 shipment		
6		1	Output feed-through and lead assembly		

1. Payment should be made from this invoice. We do not mail monthly statements.
2. Claims for adjustment must be made on receipt of merchandise. Claims for goods damaged in transit should be filed with carrier by consignee. Merchandise not returnable without our prior authorization.
3. "We hereby certify that these goods were produced in compliance with all applicable requirements of Section 6, 7 and 12 of the Fair Labor Standards Act, as amended, and of regulations and orders of the United States Department of Labor issued under Section 14 thereof."

SALES TAX		
TRANS-PORTATION		
PAY THIS AMOUNT ▶		

THE Bauer 707



MODEL 707
AM TRANSMITTER

1000/500/250 WATT

AVAILABLE COMPLETELY ASSEMBLED OR IN KIT FORM

BAUER ELECTRONICS CORPORATION — 1661 Industrial Way
San Carlos, California, U.S.A. — Telephone LYtell 3-0800

EXPORT DEPARTMENT 301 Clay St., San Francisco 11, California **CABLE "FRASEN"**

Bauer Electronics Corporation

1661 INDUSTRIAL ROAD, SAN CARLOS, CALIFORNIA——EQUIPMENT FOR THE BROADCAST INDUSTRY——LYTELL 3-0800

MEMO TO: The Broadcast Equipment Buyer

FROM: Paul Gregg, Sales Manager

Gentlemen, in the pages to follow you will find a wealth of information about just one product, the Bauer Model 707 1000/500/250 watt AM Transmitter. With the introduction of this new model the modern "kit" concept of electronics reached into the broadcast industry at a point vital to its operation -- the transmitter. Aware of the consequential responsibilities, we devoted countless hours of research and many years of experience to the development of the 707. It was designed as a kit from the ground up, and the result is a transmitter unsurpassed in accessibility and simplification.

Much of the technical material in this brochure is taken from the actual type-acceptance application submitted to the Federal Communications Commission, Washington, D. C. The 707, in fact was one of the first transmitters to be type accepted under the new and more exacting rules that went into effect on January 1, 1960. A lot of the information that you will be reading usually never leaves the files of the transmitter manufacturer; however, we thought you would be interested in it for it tells the story of a transmitter as it has never been told before. The Bauer Model 707 is available either as a kit or factory assembled -- and at a price that proves the economy of superior design.

Read the enclosed material and then order yours today!

Respectfully yours,

Paul Gregg

Paul Gregg
Sales Manager

PG:eb

MECHANICAL AND ELECTRICAL SPECIFICATIONS

Height	75 inches
Width	30 inches
Depth	25 inches
Weight (approximate)	800 lb.
Required Power Supply	208-240 volts 30 amperes Single-Phase
Power Consumption for One Kilowatt Output (approx.)	
Average modulation	3300 watts
100% modulation	4000 watts

Type of Emission	A3
Rated Power Output	1000/500/250 watts
Power Output Capability	1100 watts
R. F. Output Impedance	50 ohms, unbalanced
Frequency Range	540-1600 kc
Frequency Stability	± 5 cps
Audio Input Level for 100% mod	+ 10 dbm
Frequency Response (0-95% mod) 1000/500/250 watts	
50-10,000 cps	± 0.5 db
30-12,000 cps	± 1.5 db
Distortion (0-95% mod) 1000/500/250 watts	
50-10,000 cps	2.0 % max
Carrier Shift 1000/500/250 watts	Less than 3%
Noise Level (below 100 % mod)	
1000 and 500 watts	-60 db
250 watts	-57 db

OPERATING CONDITIONS

To insure that the transmitter has ample power capability for operation with 1 kw directional antenna systems with a reserve for possible transmission line losses between the transmitter and the common point, all "one-kilowatt" measurements reported herein were made at a power level of 1100 watts. The following operating conditions were maintained throughout the measurements reported herein:

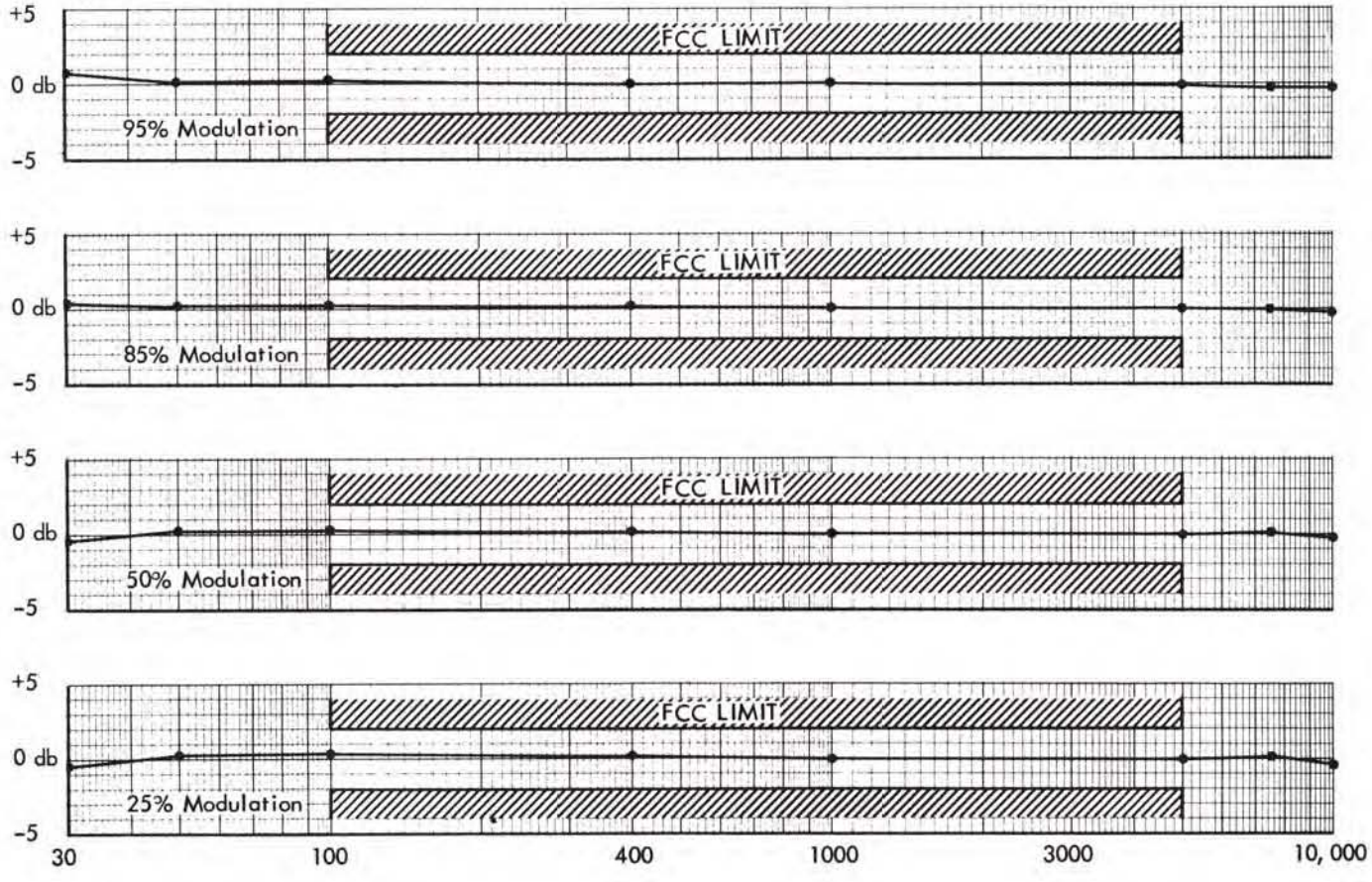
Parameter	Power Output 250 Watts	500 Watts	1100 Watts
Plate Voltage	1500 v	2130 v	3100 v
Net Plate Current	214 ma	298 ma	485 ma
Screen Voltage	315 v	450 v	530 v
Screen Current	26 ma	37 ma	55 ma
Grid Current	12.5 ma	15 ma	20 ma
Efficiency	78 %	79 %	76 %
R. F. Output Current	2.25 a	3.18 a	4.71 a
Dummy Load Resistance	49.5 ohms	49.5 ohms	49.5 ohms

MEASUREMENTS OF FREQUENCY RESPONSE
1100 WATTS

DATA

Modulating Frequency	Relative Response			
	25% Mod.	50% Mod.	85% Mod.	95% Mod.
30	-0. 4 db	-0. 4 db	+0. 3 db	+0. 8 db
50	+0. 2	+0. 2	+0. 2	+0. 1
100	+0. 3	+0. 2	+0. 2	+0. 2
400	+0. 2	+0. 1	+0. 1	0. 0
1000	0. 0	0. 0	0. 0	0. 0
5000	0. 0	0. 0	0. 0	-0. 1
7500	+0. 1	+0. 1	0. 0	-0. 3
10000	-0. 3	-0. 1	-0. 2	-0. 3

GRAPHS



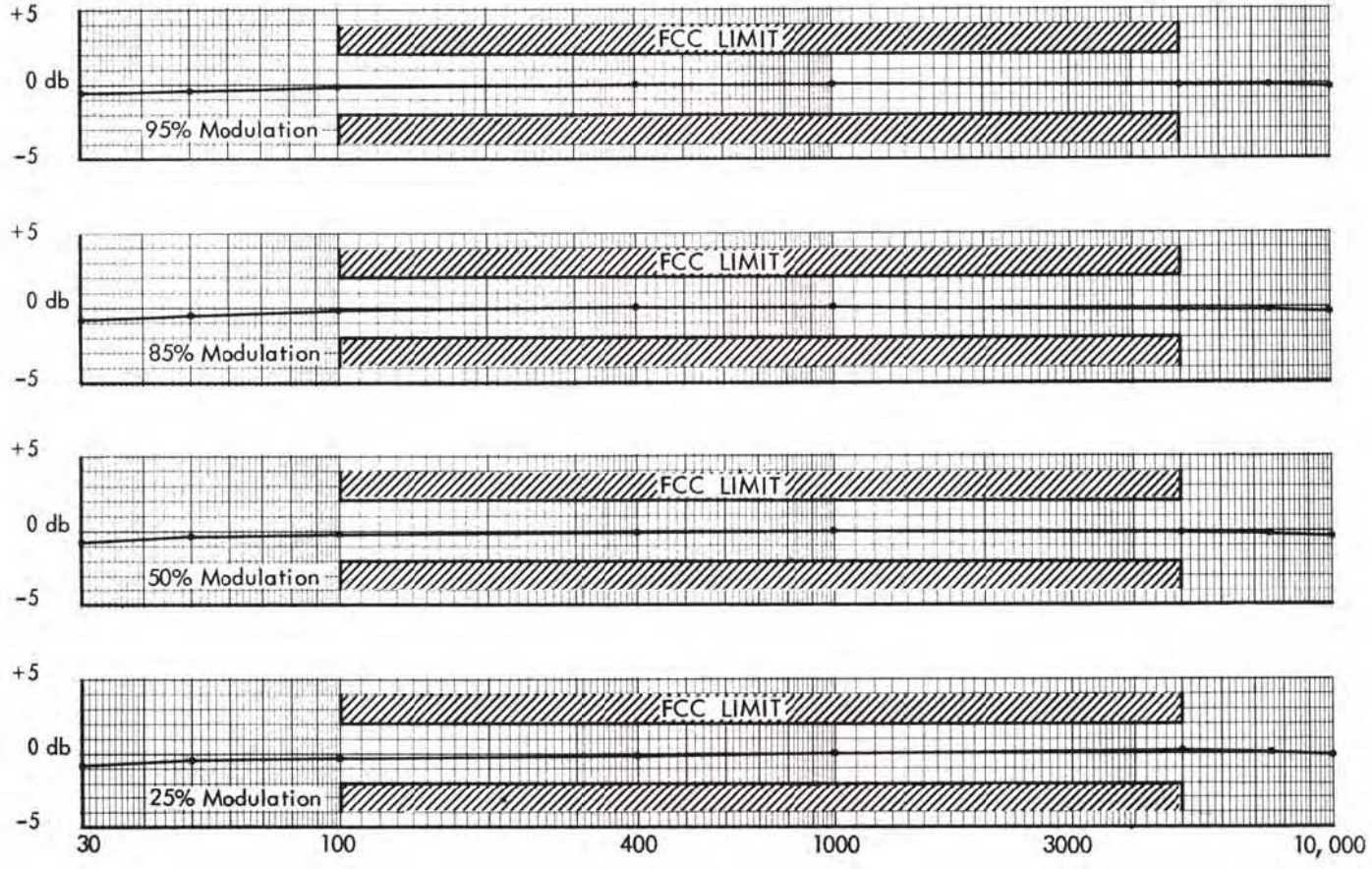
MEASUREMENTS OF FREQUENCY RESPONSE

500 WATTS

DATA

Modulating Frequency	Relative Response			
	25% Mod.	50% Mod.	85% Mod.	95% Mod.
30	-0. 9 db	-0. 8 db	-0. 7 db	-0. 6 db
50	-0. 4	-0. 4	-0. 4	-0. 4
100	-0. 3	-0. 2	-0. 2	-0. 1
400	-0. 1	-0. 1	0. 0	0. 0
1000	0. 0	0. 0	0. 0	0. 0
5000	+0. 2	-0. 1	-0. 1	-0. 1
7500	+0. 1	-0. 2	-0. 1	-0. 1
10000	-0. 1	-0. 4	-0. 3	-0. 2

GRAPHS



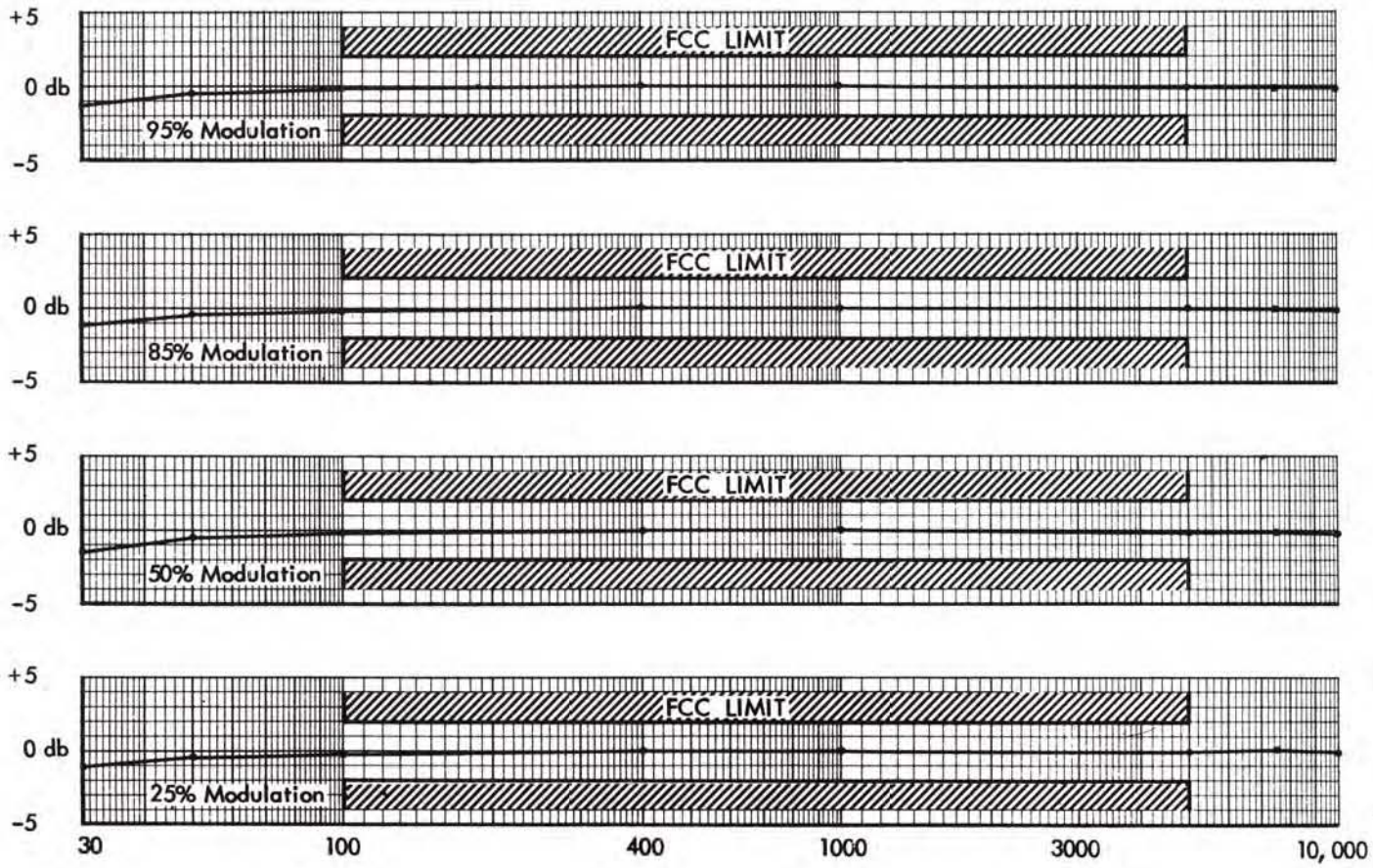
MEASUREMENTS OF FREQUENCY RESPONSE

250 WATTS

DATA

Modulating Frequency	Relative Response			
	25% Mod.	50% Mod.	85% Mod.	95% Mod.
30	-1. 1 db	-1. 5 db	-1. 3 db	-1. 4 db
50	-0. 5	-0. 6	-0. 5	-0. 6
100	-0. 2	-0. 2	-0. 2	-0. 2
400	0. 0	0. 0	0. 0	0. 0
1000	0. 0	0. 0	0. 0	0. 0
5000	-0. 1	-0. 1	-0. 1	-0. 1
7500	+0. 1	-0. 1	-0. 1	-0. 1
'0000	-0. 1	-0. 2	-0. 2	-0. 2

GRAPH



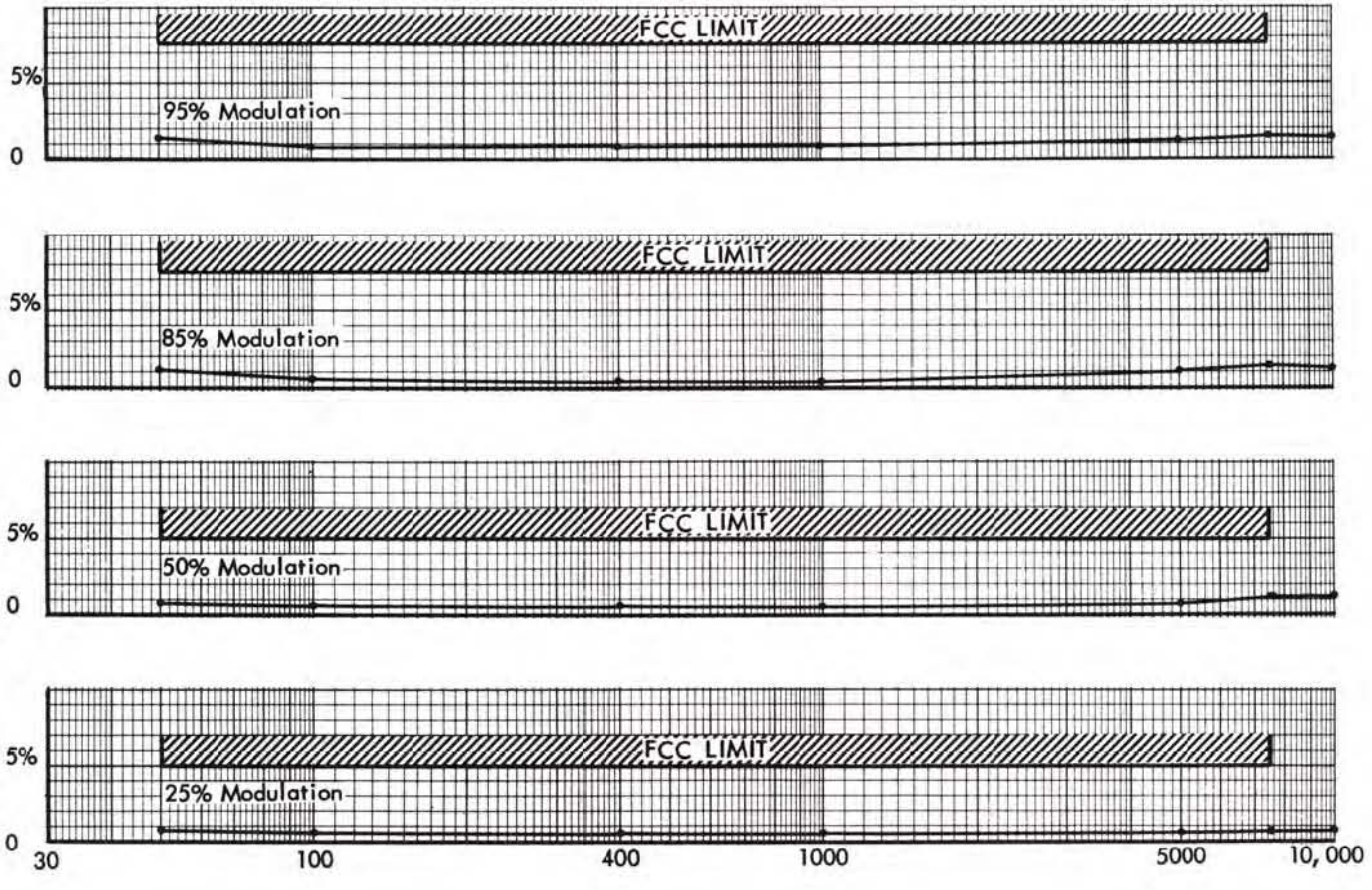
MEASUREMENTS OF AUDIO-FREQUENCY HARMONIC DISTORTION

DATA

1100 WATTS

Modulating Frequency	Harmonic Distortion (includes noise)			
	25% Mod.	50% Mod.	85% Mod.	95% Mod.
50 cps	0. 79 %	0. 78 %	1. 05 %	1. 35 %
100	0. 68	0. 62	0. 52	0. 81
400	0. 61	0. 58	0. 38	0. 86
1000	0. 56	0. 54	0. 36	0. 88
5000	0. 60	0. 73	1. 00	1. 18
7500	0. 76	1. 20	1. 38	1. 42
10000	0. 77	1. 20	1. 25	1. 40

GRAPHS



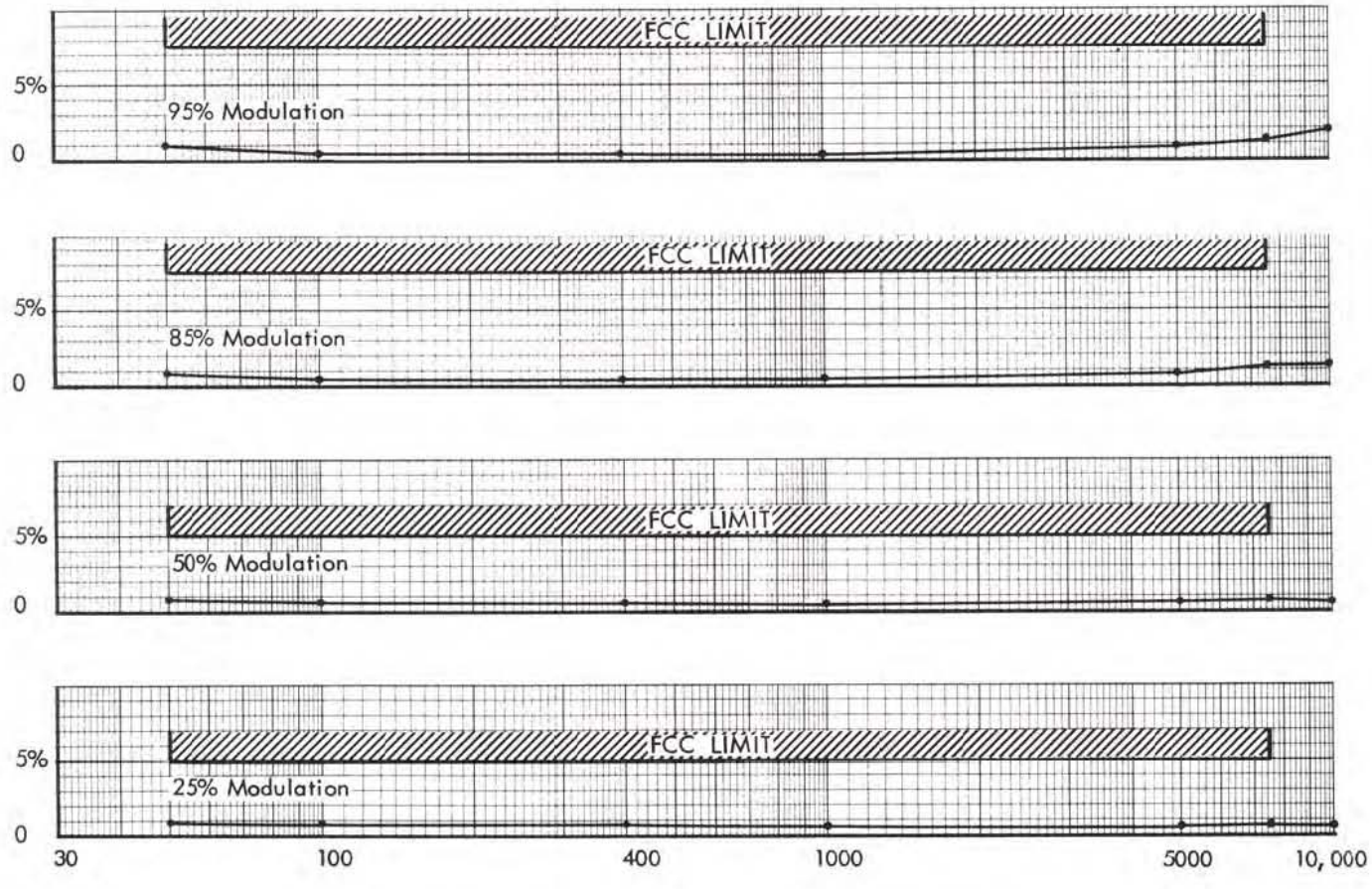
MEASUREMENTS OF AUDIO-FREQUENCY HARMONIC DISTORTION

500 WATTS

DATA

Modulating Frequency	Harmonic Distortion (includes noise)			
	25% Mod.	50% Mod.	85% Mod.	95% Mod.
50	0. 97 %	0. 78 %	0. 92 %	0. 98 %
100	0. 68	0. 53	0. 48	0. 48
400	0. 70	0. 52	0. 41	0. 48
1000	0. 66	0. 43	0. 37	0. 34
5000	0. 61	0. 57	0. 77	0. 77
7500	0. 66	0. 69	1. 05	1. 20
10000	0. 65	0. 64	1. 11	1. 80

GRAPHS



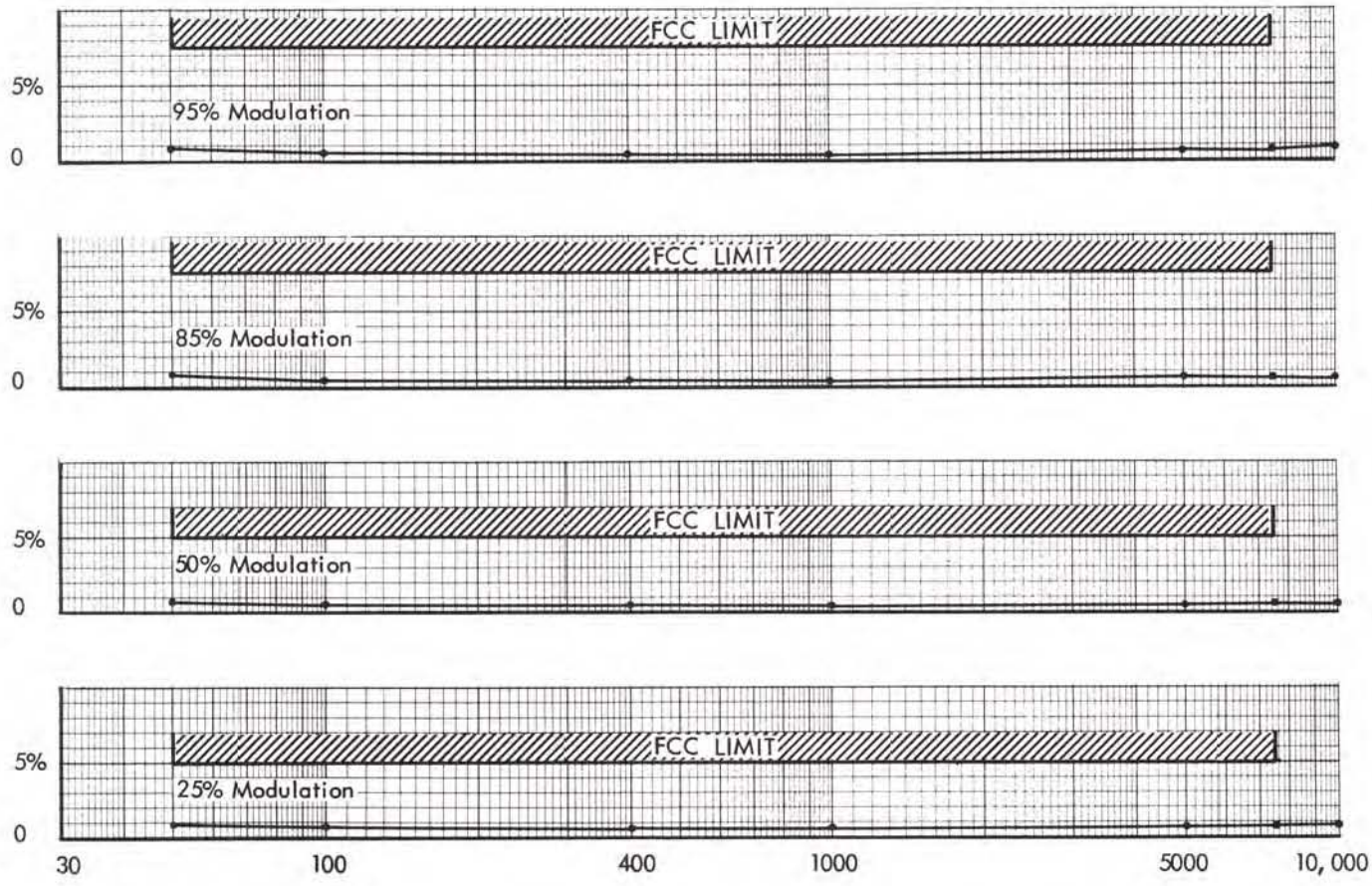
MEASUREMENTS OF AUDIO-FREQUENCY HARMONIC DISTORTION

250 WATTS

DATA

Modulating Frequency	Harmonic Distortion (includes noise)			
	25% Mod.	50% Mod.	85% Mod.	95% Mod.
50	0. 90 %	0. 70 %	0. 76 %	0. 84 %
100	0. 71	0. 51	0. 46	0. 50
400	0. 68	0. 43	0. 37	0. 38
1000	0. 67	0. 38	0. 34	0. 34
5000	0. 72	0. 48	0. 61	0. 63
7500	0. 80	0. 56	0. 58	0. 58
10000	0. 84	0. 55	0. 51	0. 88

GRAPH

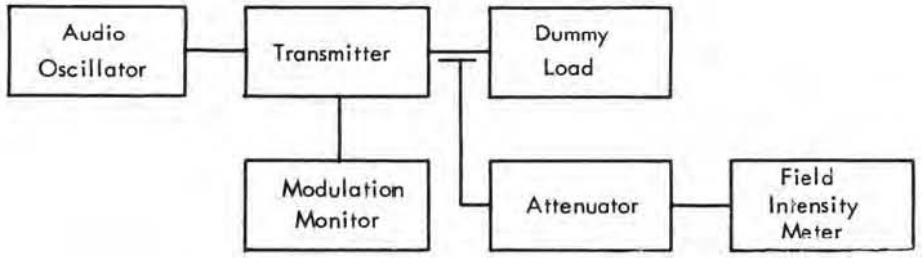


MEASUREMENT OF BANDWIDTH OCCUPIED

METHOD

While the transmitter was operated into a dummy load at power levels of 1100 watts, 500 watts, and 250 watts with 85 percent modulation by 7, 500 cps sine waves, the amplitude of the second-order sidebands was observed with a field intensity meter operated as a tuned voltmeter. The meter selectivity was measured and found to provide a rejection of 53 db to frequencies 15 kc removed from center frequency.

BLOCK DIAGRAM



DATA

	250 Watts		500 Watts		1100 Watts	
Frequency	Observed Level	Relative Level	Observed Level	Relative Level	Observed Level	Relative Level
1225 kc	+ 50 dbu	-51 db	+ 52 dbu	-51 db	+ 57 dbu	-50 db
1240 (Carrier)	+101	0	+103	0	+107	0
1255	+ 56	-45	+ 59	-44	+ 63	-44

The level of higher-order sidebands or spurious emissions that could be detected in the vicinity of the carrier were found to be lower than -70 db relative to carrier.

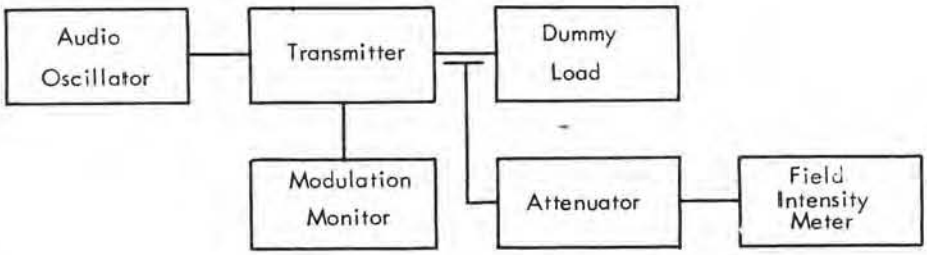
MEASUREMENT OF SPURIOUS EMISSIONS

METHOD

A sample of the output signal appearing across a dummy load was coupled by a small capacitor into an attenuator. The amplitude of the signal appearing at the output of the attenuator was measured with a field-intensity meter operated as a tuned voltmeter. Since r-f coupling to the attenuator was made with a very small capacitor, the coupling increased 6 db per octave.

All measurements for spurious emissions were made while the transmitter was being modulated 85 percent with 7500 cycle sine waves at the power levels shown. The impedance of the dummy load was measured at each harmonic frequency up to 5 mc. As shown by the following data, this impedance at the harmonic frequencies measured was essentially the same as at the fundamental frequency.

BLOCK DIAGRAM



DATA

			250 Watts		500 Watts		1100 Watts	
Harmonic	Frequency	Coupling Correction	Measured Output	Relative Level	Measured Output	Relative Level	Measured Output	Relative Level
1	1240 kc	0.0 db	97.0 dbu	0.0 db	100.0 dbu	0.0 db	103.0 dbu	0.0 db
2	2480	- 6.0	25.0	-78.0	29.0	-77.0	32.0	-77.0
3	3720	- 9.5	26.0	-80.5	33.0	-76.5	34.5	-78.0
4	4960	-12.0	14.0	-95.0	13.0	-99.0	18.0	-97.0
5	6200	-14.0	12.5	-98.5	13.0	-101.0	20.0	-97.0
6	7440	-15.6	14.0	-98.6	15.0	-100.6	18.0	-100.6
7	8680	-16.8	21.5	-92.3	20.0	-96.8	26.5	-93.3
8	9920	-18.0	32.5	-82.5	31.0	-87.0	37.0	-84.0
9	11,160	-19.1	22.5	-93.6	27.0	-92.1	33.0	-89.1
10	12,400	-20.0	<10.0	<-107.0	< 10.0	<-110.0	15.5	-107.5

Except in the vicinity of the carrier frequency, spurious emissions could not be detected at any frequency between 150 kc and 25 mc, other than the harmonics shown above.

MEASUREMENT OF SPURICUS EMISSIONS (Continued)

LOAD IMPEDANCE USED FOR MEASUREMENTS OF SPURICUS EMISSIONS

An air-cooled coaxial dummy load designed for television use was used as the transmitter load impedance for the measurements shown on Figure 5A. The load impedance at each harmonic frequency up to the 5 mc limit of the radio frequency bridge was measured by standard techniques and found to be as follows:

Harmonic	Frequency	Measured Impedance
1	1240 kc	49.5 -j 0.3 ohms
2	2480	49.4 -j 0.8
3	3720	49.3 -j 0.5
4	4960	49.2 -j 0.6

From the above measurements and the known performance of the dummy load at VHF frequencies, it is believed that the measurements of the spurious voltages present in the transmitter output are not affected by changes of load impedance.

MEASUREMENTS OF CABINET RADIATION

METHOD

With the transmitter operated as above, at power levels of 250 watts and 1100 watts, the field intensity of spurious radiation from the cabinet and attached circuits was measured. For these tests, the transmitter was operated into the dummy load in such a manner that any emissions were radiated principally from the cabinet, control circuits, power leads, or audio leads. The spectrum was investigated at all frequencies up to the tenth harmonic of the carrier. All observed signals having a strength which was measurable on the Stoddart Type NM-20A field intensity meter employing a shielded loop are reported below. Observations of the extent of spurious radiations were made in several directions from the transmitter and the following measurements were made in the direction of maximum signal at a location free from surrounding wires or metal objects. The measurements were made at a distance of 63 feet from the transmitter. To minimize the effects of induction fields and other errors, it would have been desirable to measure at greater distances. However, the extremely low level of the observed spurious radiation did not permit such measurements.

The strength of these spurious radiations has been compared with the carrier frequency field intensity which would exist at the same point with the same transmitter power exciting a vertical radiator one-quarter wavelength in height having an optimum ground system. The unattenuated field intensity of the reference antenna would be 195 mv/m at one mile for one kilowatt. At the actual distance to the measuring point this would correspond to a field intensity of 144.2 dbu.

MEASUREMENT OF SPURIOUS EMISSIONS (Contined)

DATA

CABINET RADIATION

Harmonic	250 Watts Measured Field	250 Watts Relative Level	500 Watts Interpolated Field	500 Watts Relative Level	1100 Watts Measured Field	1100 Watts Relative Level
2	< 24. 1 dbu	< -114. 1 db	< 24. 1 dbu	< -117. 1 db	24. 1 dbu	-120. 1 db
3	30. 9	-107. 3	34. 3	-106. 9	37. 7	-106. 5
4	26. 4	-111. 8	30. 6	-110. 6	34. 8	-109. 4
5	23. 5	-114. 1	25. 8	-115. 4	28. 0	-116. 2
6	< 28. 4	< -109. 8	< 28. 4	< -112. 8	< 28. 4	< -115. 8
7	19. 1	-119. 1	22. 1	-119. 1	25. 1	-119. 1
8	35. 6	-101. 6	38. 4	-102. 8	41. 2	-103. 0
9	< 16. 8	< -121. 4	< 16. 8	< -124. 4	< 16. 8	< -127. 4
10	< 15. 1	< -123. 1	< 15. 1	< -126. 1	< 15. 1	< -129. 1

Spurious radiation could not be detected at any frequency between 150 kc and 25 mc other than the harmonics shown above.

MEASUREMENT OF CARRIER SHIFT

The carrier shift between conditions of no modulation and 100 per cent modulation at 400 cycles per second did not exceed the following values:

Power Level	Carrier Shift
1100 watts	2.0 %
500	2.0 %
250	1.5 %

MEASUREMENT OF HUM AND NOISE

The demodulated transmitter output resulting from hum and noise was measured relative to 100% modulation and found to be as follows:

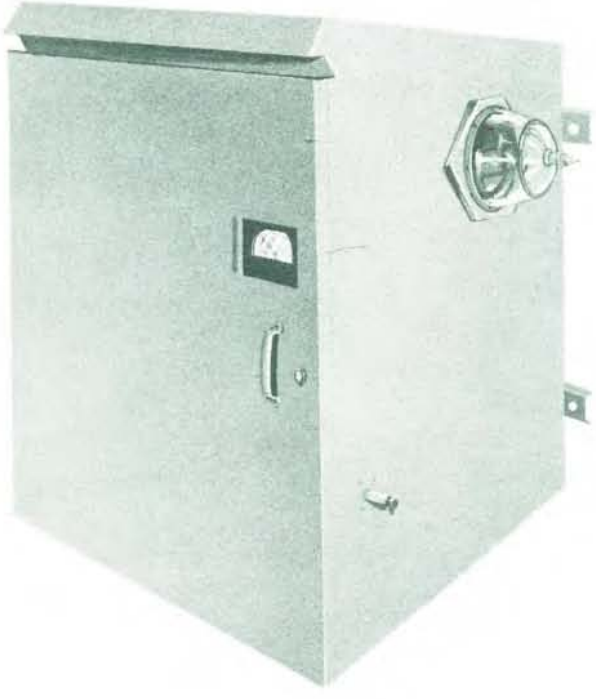
Power Level	Hum & Noise
1100 watts	-61 db
500	-61
250	-58

TEST EQUIPMENT

Audio oscillator	Waveform	Type 510B	Serial 03035
Modulation monitor	General Radio	Type 1931A	Serial 968
Noise and distortion meter	General Radio	Type 1932A	Serial 928
Field intensity meter	Stoddart	Type NM-20A	Serial 130-26
Attenuator	General Radio	Type 874	30 db
Dummy load	RCA (Bird)	Type 93405	Serial 507
Signal generator	General Radio	Type 684A	Serial 214
Bridge	General Radio	Type 916AL	Serial 2341

MODEL LCU-1 COUPLING UNIT

WILL MATCH OUTPUT OF 707 TO TRANSMISSION LINES HAVING IMPEDANCE OTHER THAN 50 OHMS. WHEN ORDERING, SPECIFY IMPEDANCE OF LINE TO BE MATCHED.



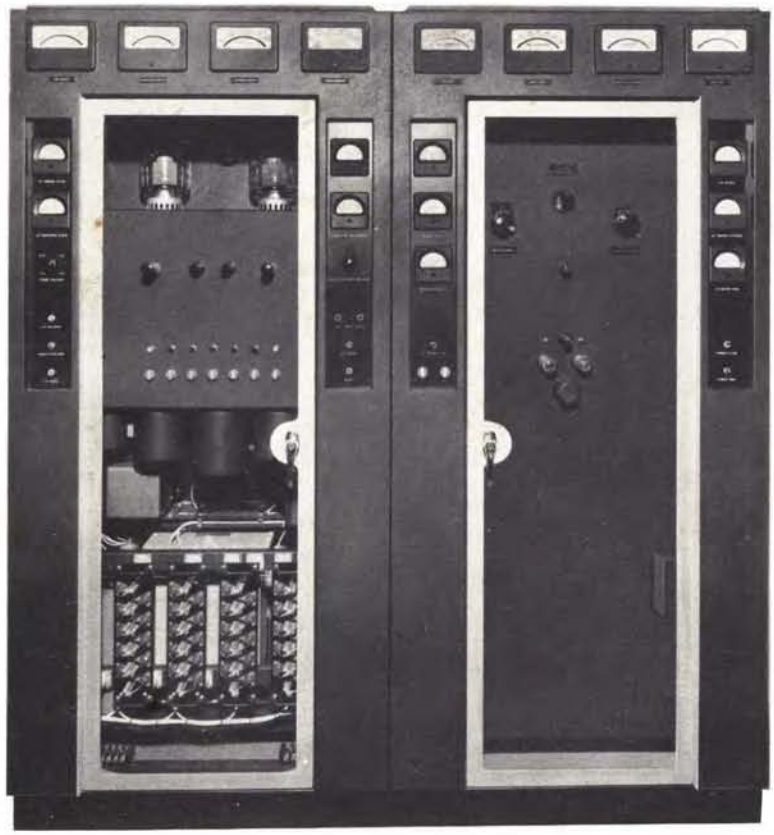
MODEL ACU-301 ANTENNA COUPLER

AN IKW ANTENNA COUPLER FOR MATCHING ANY TRANSMISSION LINE TO AN ANTENNA HAVING A RESISTANCE OF FROM 10 TO 1000 OHMS AND A REACTANCE OF ± J 200. STANDARD "TEE" NETWORK IS USED. CABINET IS WEATHERPROOF AND IS AVAILABLE IN ALUMINUM OR STEEL. 3-INCH METER AND METER SHORTING SWITCH (FOR LIGHTNING PROTECTION) ARE INCLUDED.

WHEN ORDERING, SPECIFY FREQUENCY AND POWER, TYPE OF TRANSMISSION LINE TO BE USED AND HEIGHT OR LENGTH OF RADIATOR.

BAUER Model FB 5000-J

5000 Watt AM Transmitter



This newest Bauer 5000 watt AM transmitter utilizes conservative design of all circuits and today's most advanced components to provide you with top performance plus minimum maintenance through operation of all components well below rating. The final RF tube, for example, is a ceramic tetrode (Eimac 4CX5000A) that provides a maximum dissipation capability twice that of conventional transmitter design. At the same time power consumption has been reduced several kilowatts. Bauer's advanced design has also reduced the tube complement by 50% and provided easy accessibility to all components. These are just a few of the many advanced features available as standard equipment, when you specify the Bauer Model FB-5000-J. Complete detailed specifications available upon request.

Standard Features

Vacuum Capacitors	100% Silicon Diode Rectifiers
Automatic Filament Regulation	Automatic Protective System
Built-In Remote Control	One Knob Tuning

BAUER ELECTRONICS CORPORATION — 1661 Industrial Way
San Carlos, California, U.S.A. — Telephone LYtell 3-0800

EXPORT DEPARTMENT **FRAZAR & HANSEN, LTD. — 301 Clay St., San Francisco 11, California** **CABLE "FRASEN"**

DESIGN FEATURES OF A BROADCAST TRANSMITTER KIT

A new development in the broadcast equipment field is the availability of kits. The new 1000/250 watt transmitter kit offered by Bauer Electronics Corp. is described in this article.

By PAUL GREGG*

THE "do-it-yourself" trend has reached the broadcast equipment field with the introduction of the Bauer Model 707 AM transmitter. The design was based on an existing one-kilowatt Bauer model but has been simplified mechanically to meet the modern concept of "kit form" electronics.

Not only did this simplification make the transmitter easier to build, it also provided a layout that permits complete component accessibility. Note in Figures 2 and 3 the ease with which every component can be reached. All wiring is accomplished with just one harness which is supplied with the kit, properly laced, and with each wire number coded. All small components are mounted on well marked component boards (such as Fig. 4). Eleven of these insulated boards are used in various sections of the transmitter. An illustrated assembly instruction book shows the correct placement of each part and outlines each step of the wiring.

The average assembly time is 100 hours. When a Bauer kit transmitter is completed the builder sends a notice to the manufacturer, who then sends a representative to the station to run a proof-of-performance on the completed transmitter. When the representative is satisfied that the transmitter meets factory specifications he installs the Bauer nameplate and it is ready for use.

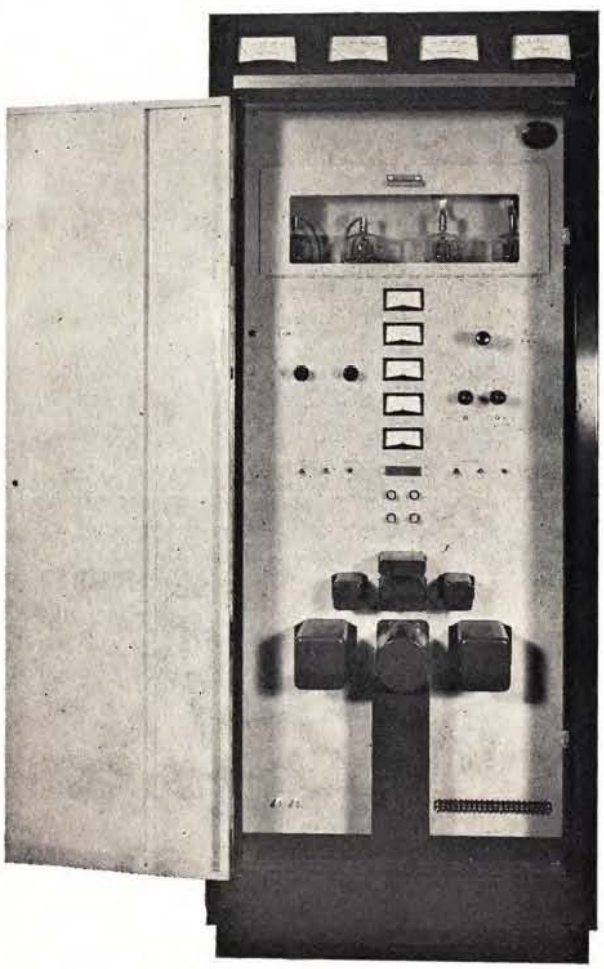


Figure 1. The Model 707 showing the front panel.

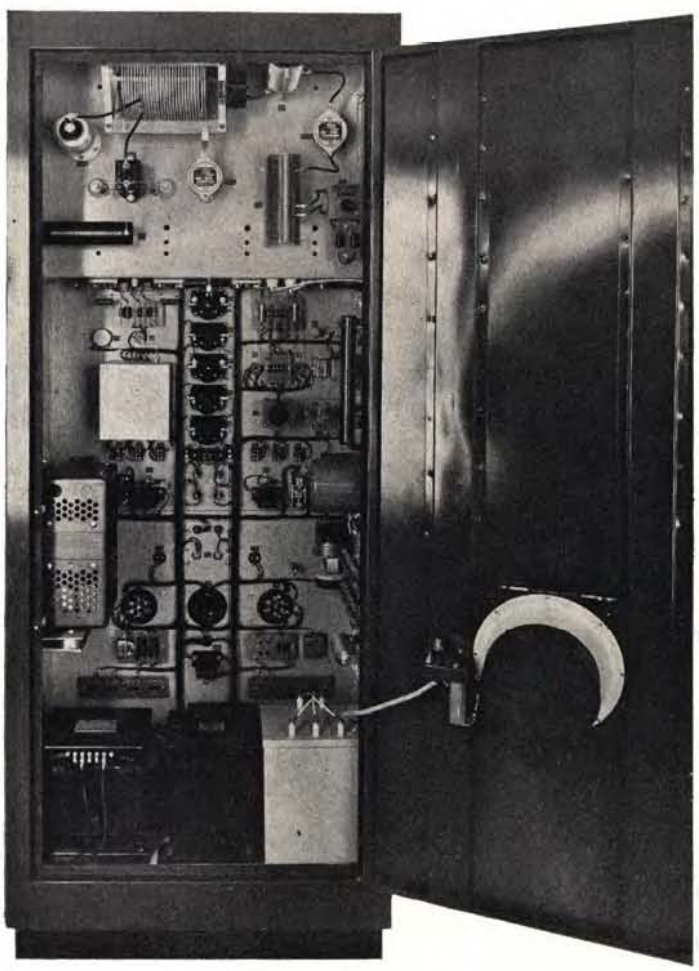


Figure 2. Rear view of completed transmitter.

Figure 3. Closeup of transmitter rear.

The RF Section

Looking from the rear (Fig. 2) the RF section is on the left side of the transmitter. Figure 3 shows a closeup of the oscillator-buffer section with the cover removed. This section is assembled on a separate shielded chassis, factory wired and checked, to insure stability. There are provisions for two vacuum crystals and either one can be selected by a relay which is controlled from a switch on the front panel or remotely. The vacuum crystal supplied with the Model 707 is capable of controlling the carrier frequency with an accuracy of $\pm$ 5 cps without the use of heaters, thermostats or ovens.

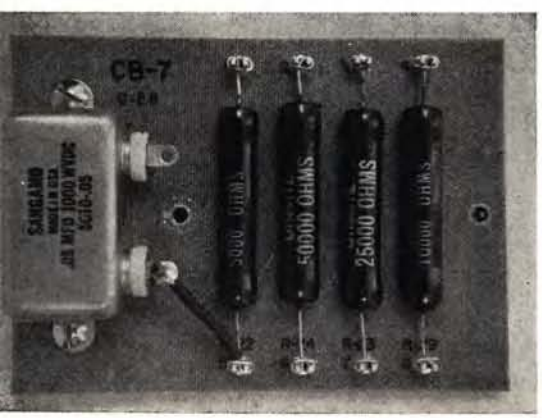


Figure 4. Component board of the low voltage power supply.

The oscillator is a Type 6AG7 connected in an electron-coupled circuit and is followed by another Type 6AG7 functioning as a Class A buffer. The driver is a Type 6CA7/EL-34 operating as a Class C stage. The driver excites two Type 4-400A tetrodes operating in parallel as a plate modulated power amplifier. A motor-driven rheostat in the cathode circuit of the final stage controls output power so as to compensate for variations in line voltage. The final tank circuit is unique in that tuning is accomplished through the use of a variable vacuum capacitor, a top quality method not usually found in one-kilowatt transmitters.

The transmitter is designed to match a 50-ohm unbalanced load. The RF output circuit provides the required impedance transformation and adequate harmonic suppression through the use of a "Pi" network followed by a "Tee" network. Additional suppression of second harmonic output is provided by connecting the load to the "Pi" network coil at a point where the impedances of the coil and a fixed capacitor are series resonant at the second harmonic frequency. A simple adjustment of this circuit provides harmonic suppression well beyond that required by the new FCC rules made effective last Jan. 1.

The Bauer Model 707 was one of the first transmitters type accepted by the FCC under these new rules. In looking at Figure 2 you will no-

*Bauer Electronics Corp., Burlingame, Calif.

tice the dummy antenna switch. The built-in dummy load is made up of four "ohmspun" grids mounted in the outgoing air stream. Since all the dummy antennas used in the broadcast band are reactive, a means is provided in the Model 707 to automatically cancel out this reactance at any frequency and provide a pure resistive load.

The AF Section

Looking from the rear (Fig. 2) the AF section is on the right side of the transmitter. Four tubes are used in this section. A pair of push-pull 6SJ7's drive a pair of push-pull 4-400A tetrodes operating as Class AB-1 modulators. 8DB of inverse feedback is provided over the two audio stages. One interesting feature of the design is that the modulator plate current when fully modulated does not vary more than 10 per cent over a 30 to 12,000 cycle range. The over-all response of the transmitter is flat within ± 1.5 db over a 30 to 12,000 cycle range. Distortion is below 2 per cent and noise is down — 64 db.

The Power Supplies

Vacuum tubes have been eliminated in all high voltage, low voltage and bias rectifier circuits in the Bauer Model 707 in favor of semiconductor units. Type 1N2071 silicon diodes are used exclusively, 16 in the low voltage supply, 4 in the bias supply and 56 in the high voltage supply. The low voltage supply is located on the left side of the transmitter (Fig. 2—lower left). The bias supply is located on the lower right and the high voltage rectifier (two plug-in sections) is located on the right above the modulation transformer.

Standard bridge rectifiers are used throughout and transformer center taps play an important part in the low and high voltage supplies. The tap on the low voltage supply provides the 400 volts necessary for the low level audio stages and the oscillator-buffer section. In the high voltage section the center tap provides the 1500 volts necessary for power reduction thus providing a transmitter that draws no more power during the cutback operation than any of the many 250-watt transmitters now in use.

An interesting feature of the power cutback circuit is that the reduced final plate voltage has an additional filter allowing excellent noise specifications (—64DB) at 250 watts. When reducing power a reduction in drive to the final and a 6DB reduction in the audio input are automatic. Power cutback to 500 or 250 watts is standard equipment on the Bauer 707. Cutback is essential for the Class IV station with a lower nighttime power and is a bonus for the kit builder who can perform initial tune-up at low power.

The Control Circuits

With the use of semi-conductor power supplies the Bauer control circuits were greatly simplified and automatic starting was provided. Actually, only one master start-stop switch is necessary since the silicon power supplies require no warmup time. High voltage comes on automatically as soon as there is sufficient grid drive to the final tubes to close an underdrive relay. The master start-stop switch is of the new illuminated bar type (Fig. 1—middle), three inches long and easy for even the newest third-class operator to find. An interesting feature of the control circuit is a "second chance" device that automatically resets the overload relays in the event of an outage. This circuit is adjustable so that single short overloads will not take the transmitter off the air although continued overloads will. The relay protective system can be easily reset by remote control. The modulator and final RF stages, as well as the high-voltage transformer, are well protected by reliable delay-type overload relays that eliminate nuisance outages due to momentary overloads. Low voltage and control circuits are fused by the new indicator type fuse holders.

An additional feature found in the Bauer 707 is automatic voltage control. A Sola constant voltage transformer of the new low harmonic type (Fig. 2—left side) maintains all filament and low voltage supplies within one per cent. Filament rheostats that require manual adjustment are thereby eliminated and tube life is extended.

Cooling of tubes and components is controlled through the use of a pressurized cabinet. Filtered air is drawn in by a high quality blower on the rear door, circulated throughout the cabinet, and then forced through the 4-400A tube sockets for maximum cooling. All switching and control functions are pre-wired to the main terminal board making remote control a simple matter. In addition the plate voltage and plate current kits are built in—a standard part of the 707 circuitry. Note in Figure 1 the number of meters, nine in all, providing continuous metering of all circuits.

Summary

The engineer who builds the 707 kit can gain valuable experience during the construction period. Also he achieves a familiarity with the transmitter that will prove very helpful over the years that he will service it. Since professional tools are supplied with every kit he will be able to turn out a first class transmitter and capture the personal satisfaction that goes with a job well done.

Reprinted from June, 1960, *Broadcast Engineering*

THE BAUER 1000/250 WATT AM TRANSMITTER KIT

GENERAL DESCRIPTION

The Bauer 1000/250 watt AM Transmitter Kit is an established design based on the many years of success of the Bauer FB-1000-J, yet utilizes today's most advanced components to provide optimum performance with a minimum of maintenance.

The Model 707 Transmitter Kit is shipped complete with: detailed assembly instructions; a coded wiring harness; premarked component boards for individual transmitter sections; a factory assembled and checked oscillator-buffer section; a complete set of operating tubes; a vacuum crystal for your operating frequency; and a tool kit.

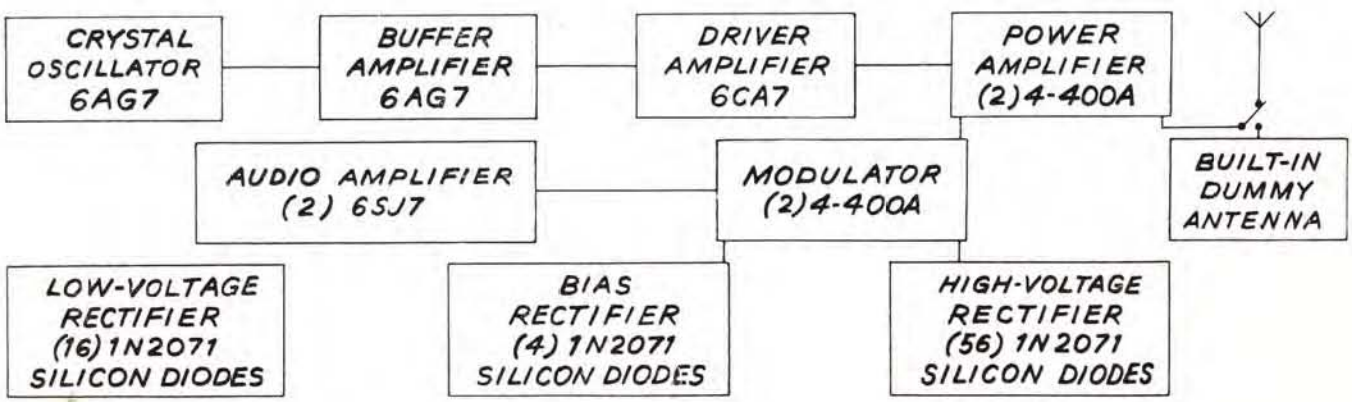
Upon completion of your Bauer Kit a representative of the company will inspect and test your assembled transmitter on location . . . at no additional cost. It must meet factory specifications in every way. This is your assurance of a transmitter of factory quality.

STANDARD EQUIPMENT

Silicon Rectifiers in All Power Supplies
Variable Vacuum Condenser
Automatic Voltage Control
Built-In Dummy Antenna
Vacuum Crystal
Power Reduction — 1000/500 or 250 Watts
Pressurized Cabinet
Built-In Remote Control Facilities
Complete Set of Operating Tubes
Tool Kit

GENERAL PERFORMANCE CHARACTERISTICS AND SPECIFICATIONS

TYPE OF EMISSION	A3
RATED POWER OUTPUT	1000/500/250 watts
POWER OUTPUT CAPABILITY	1100 watts
R.F. OUTPUT IMPEDANCE	50 ohms, unbalanced
FREQUENCY RANGE	540-1600 Kc
FREQUENCY STABILITY	±5 cps
AUDIO INPUT LEVEL (100% mod.)	10 dbm
FREQUENCY RESPONSE (0-95% mod.)	
1000/500/250 watts	
50-10,000 cps	±0.5 db
30-12,000 cps	±1.5 db
DISTORTION (0-95% mod.)	
1000/500/250 watts	
50-10,000 cps	2.0% max
CARRIER SHIFT 1000/500/250 watts	less than 3%
NOISE LEVEL (below 100% mod.)	
1000 and 500 watts	—60 db
250 watts	—57 db
POWER CONSUMPTION	
(For one kilowatt carrier power)	
Average modulation	3300 watts
100% modulation	3950 watts
POWER REQUIREMENTS	208-240 volts 50/60 cycles Single phase
DIMENSIONS —	
Height	75"
Width	30"
Depth	25"
NET WEIGHT	800 pounds (approx.)



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